

TWINNING CONTRACT

AM/14/ENP/ST/15

Strengthening of the National Statistical System of Armenia – Phase II



MISSION REPORT

on

Water Accounts

Activity 6.2: Review of data

Mission carried out by

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List of Abbreviations

EU	European Union
NSSRA	National Statistical Service of the Republic of Armenia
JQ-IW	OECD/Eurostat Joint questionnaire on inland waters
PWFA	Physical Water Flow Accounts
SEEAW	System of Environmental-Economic Accounting for Water
WA	Water Accounts
WR	Water Resources
WS	Water Statistics

1. General comments

This Mission Report was prepared within the Twinning Project “Strengthening of the National Statistical System of Armenia – Phase II”. The Report refers on the activities conducted during the second activity in component 6 and on the actions planned linked to this activity to be carried out as scheduled.

The objectives of the second Istat mission were:

- assessment of situation and presentation by BC of the work conducted since last mission
- theory and practice in the compilation of Physical Water Flow Accounts tables
- theory and methodological aspects on monetary supply and use tables for water resources and water related products
- theory and methodological aspects on monetary input-output tables for water
- indicators derived from the water accounts: construction, compilation, policy uses
- methodological aspects on hybrid accounts for water
- involvement of relevant stakeholders in the discussions

The MS experts would like to express their sincere thanks to all officials and individuals met for the kind and professional support and valuable information which they received during the stay in Armenia and which highly facilitated their work. The views and observations stated in this report are those of the experts and do not necessarily correspond to the views of EU, NSSRA, Istat or Statistics Denmark.

2. Assessment and results

2.1 Assessment of situation and presentation by BC of the work conducted since Istat last mission

The first objective reached in the second mission was the presentation by NSSRA staff of the work conducted since last Istat mission. In particular all tasks requested by Istat have been completed.

In detail, NSSRA staff described all data flow by source and typology and the relationships between NSSRA and various ministries and institutions involved in environmental field. The role of ministries and the role carried out by NSSRA in the production of environmental statistics and water statistics have been clarified. Information on data check and data validation were provided. In particular issues related to homogeneity, standardisation and comparability of data were examined. Missing data treatment, due to partial or total missing responses, was discussed, in relation to the methods used for imputation. Other approaches, such as official inspections and controls on the spot, were discussed. As required, the description of the water *reporting on water use* was addressed in great detail. The Istat staff required to NSSRA several clarifications on the reporting questions.

Finally, some notes on water agreements between Armenia and other countries (specifically, Iran and Georgia) were underlined, as requested in homeworks defined in the first Istat mission.

2.2. OECD/Eurostat Joint Questionnaire on Inland Water: review of the tables compiled

According to the program scheduled in the previous meeting, NSSRA and Istat staff had worked together on the JQ-IW tables, previously compiled and sent by NSSRA to Istat by email in the first week of May 2016. An interesting and in-depth discussion was developed on some relevant points, highlighted and clarified by the MS experts.

The compilation of the JQ-IW tables was done with a high degree of completeness. The most important discussion points addressed on data sources and methodological aspects related to specific items. For this reason, the clarification of further aspects of the work by NSSRA has been defined to be included in the next homeworks, especially about calculation methods according to the official

Eurostat Manual guidelines. Besides, as anomalous values were identified for some indicators, Istat expressed the need to review such values, also together with the data providers, if necessary.

2.3 Discussion on methodology and compilation of Physical Water Flow Accounts

With the aim to produce water national accounts, also used in policy analysis both at international and national level, Istat staff began the related presentation starting from physical accounts. In particular methodological aspects and practices were presented for the set of the five PWFA tables for water:

- table A - physical supply table for water
- table B - physical use table for water
- table C - physical supply table for emissions to water
- table D - physical use table for emissions to water
- table E - key water indicators.

Bibliographical references on official International Statistical Manuals were indicated and provided by Istat, basic documents to implement water accounts (in physical and monetary terms). A wide explanation was devoted both to the theoretical principles/methodologies and to the practise in order to enable NSSRA staff compiling PWFA tables before next study visit to be held in Rome. Besides, during the discussion some country-specific case studies were examined, matching characteristics closer to the Armenian issues.

As some variables requested by the PWFA tables are included in the JQ-IW, it was also explained a mapping with the connections between the two reportings, according to the results developed and disseminated by the Eurostat Working Group on Environmental Accounts in the last meeting held in March 2015.

2.4 Monetary and hybrid accounts for water. Theory on supply and use tables, input-output tables and hybrid flow accounts

Statistical and analytical framework referred to supply and use tables, input-output tables in monetary terms and finally hybrid accounts in monetary and physical terms were illustrated. In particular methodological and operational aspects were provided by Istat. The aim was to:

- deepen monetary water accounts characteristics and compilation methods, classifications used and analytical potentiality;
- analyse methodological aspects and structure of monetary supply and use tables and input-output table of water-related products by highlighting interconnections among the tables;
- provide basic methodological information on monetary supply and use tables and input-output tables, according to the official statistical manuals, by recalling some principles of national accounting adopted;
- present hybrid flow accounts for water framework, as analytical tools integrating physical with monetary information about processes within the economy;
- in particular general conceptual foundations and structure of hybrid account for supply and use table for water have been illustrated.

Concerning physical and monetary accounts for water, related official statistical manuals were presented to NSSRA staff and relevant paragraphs were underlined in order to facilitate the study of the accounts framework planned before NSSRA colleagues study-visit in Rome.

Besides issues on the set of prices used in national accounting and also in the monetary accounts for water were illustrated. In particular purchases prices, basic prices and market prices definitions and implications for the compilation were analysed.

2.5 Indicators derived from water accounts for water management and policy uses

A wide part of the discussion was devoted to examine in depth both indicators derived from PWFA and indicators for water management drawn from SEEAW Statistical Manual.

Starting from the presentation on official statistical reference manuals, the key water indicators were presented derived from PWFA tables, previously compiled:

- K.1 water consumption
- K.2 water use
- K.3 net emissions.

It was also illustrated which indicators can be derived combining physical and monetary information (gross value added and production) in order to have efficiency measures, useful also for policy decision making. Some analytical uses were prefigured. A focus on water use intensity and water use productivity indicators construction and usage in analysis was done. Some examples in applied economics analysis were provided.

Another group of indicators for water management drawn from SEEAW were presented to obtain a better understanding of current patterns of supply, use and pressure on water resources. It was explained how descriptive statistics and indicators from the accounts provide information on the following themes:

- sources of pressure on water resources: determining how much each sector contributes to particular environmental pressures, such as overexploitation of groundwater or water pollution;
- opportunities for improving water productivity: determining if water is being allocated to the highest value users; identifying what opportunities exist to increase water efficiency and productivity; assessing the extent of the losses;
- water pricing policies: determining if water providers are achieving full cost recovery; finding out if pricing is equitable across different users; assessing whether pricing policies provide incentives for water conservation and pollution prevention or whether they encourage excessive use of water resources;
- sustainability of water use: water resources vs water use.

2.6 Presentation by BC on environmental expenditure accounting (focus on water) in Armenia

NSSRA presented the survey questionnaire “*About environmental expenditures made by organizations*” in a draft version. Istat and NSSRA staff have analyzed in detail each question, answer modes foreseen in the questionnaire sections and related instructions for the compilation. Some points have been identified for a revision, both in the logical construction of the questionnaire structure and in the English version of the document. A preliminary analysis on the degree of consistency between variables provided by the questionnaire and data needed to compile the environmental protection expenditure accounts (EPEA) within the satellite accounts system of national accounting was started.

2.7 The involvement of relevant stakeholders in the discussions

During the analysis on the monetary accounts for water, stakeholders from ministries and NSSRA National Accounting Directorate involved in environmental field and in the compilation of monetary national accounts, were invited by the NSSRA staff to participate in the discussion table. This made possible to broaden the audience and share issues investigated directly with the suppliers and users of environmental and water data.

3. Conclusions and recommendations

Conclusions

- NSSRA did a good work in line with the recommendations and the road map fixed at the end of the previous Istat mission on February 2016 (activity 6.1).
- All the analysis developed by NSSRA staff confirm that WS databases are rich of data and information at different scale of aggregation. For this reason they have compiled the tables of the OECD/Eurostat Joint Questionnaire on Inland waters (JQ-IW) with a high degree of completeness.
- Theoretical and practical aspects of Physical Water Flow Accounts (PWFA) compilation have been developed in the present activity 6.2. In particular the supply and use tables for water and for emissions to water (including derived indicators) have been examined in detail. The relations between the PWFA and JQ-IW tables items and recent improvements on this issue pursued by Eurostat Working group on Environmental Accounts in 2015 have been analysed.
- NSSRA databases related to water resources seems to be in line with the information needs required by PWFA compilation.
- Methodological aspects of water monetary accounts have been presented, taking in to account reference international framework (SEEA2003, SEEA-Water2012). In particular, monetary supply and use tables of water-related products, input-output tables and hybrid account for supply and use table of water were explained.
- At date Istat and NSSRA staffs have been profitably worked in accordance with the road map, sharing experiences and results.

Recommendations

- Putting the high amount of information discussed in activity 6.2 into order so to pursue gradually the objectives planned.
- Deepening the analysis of official reference statistical manuals indicated and work documents edited by Istat and provided, basic condition to a successful compilation of the Physical Water Flow Accounts (PWFA).
- Studying official statistical manuals and the work documents edited by Istat referring to monetary water accounts. The aim is to become more familiar with conceptual foundations, classifications and methodologies used in the construction of this account system.
- In case of doubts or uncertainties NSSRA staff may contact Istat experts in any moment, by email or by Skype, in order to receive the technical support that is necessary.

Actions needed for moving forward as well as for preparing the next mission

Action	Deadline	Responsible person
Prepare and send to Istat staff reporting on wastewater treatment plants	20 June 2016	NSSRA
Update of JQ-IW tables previously compiled, according to the revisions discussed during the activity 6.2. Deepening data sources and calculation methodologies.	30 June 2016	NSSRA
Research of data sources available, in addition to the JQ-IW variables, for the Physical Water Flow Accounts compilation	29 July 2016	NSSRA
Compilation of tables A-B-C-D of the PWFA, according the official statistical manuals discussed	18 August 2016	NSSRA
Calculation of the indicators (table E) derived by the PWFA	8 September 2016	NSSRA
Report on critical aspects arisen during the PWFA compilation	15 September 2016	NSSRA
Focus on missing items or items with an uncertain quality that have to be little by little underlined, with the aim to individuate the best practices to use (proxy variables, estimations models, surveys, administrative data)	24 September 2016	NSSRA
Simultaneously to the analysis of the conceptual framework and methodologies referring to monetary accounts on water related products, prepare a document with data sources. In particular, monetary supply and use tables of water related products, input-output tables and hybrid account for supply and use table of water are concerned.	5 October 2016	NSSRA

Annex 1: Terms of Reference

<p style="text-align: center;">Terms of Reference</p> <p style="text-align: center;">EU Twinning Project AM/14/ENP/ST/15</p> <p style="text-align: center;">16-20 May 2016</p>

Component 6: Water Accounts

Activity 6.2: Review of data

0. Mandatory results and benchmarks for the component

Mandatory results:

- Water account compiled (July 2017)

Benchmarks:

- Inventory of data sources (availability, information flow) for water accounts defined (April 2016)
- Methodology for water accounts developed (January 2017)
- Meeting with stakeholders held (July 2017)
- Water accounts compiled (July 2017)
- Staff of NSSRA trained on issues related to the water accounts compilation (July 2017)

1. Purpose of the activity

- Review of existing data and identification of need of new data
- Discussion on use of administrative registers and how to improve quality
- Compilation of water accounts and their usage
- To involve relevant stakeholders in the discussions

2. Expected output of the activity

- Data needs and availability identified
- Need for new data defined
- Possibility to use administrative registers clarified
- Compilation and use of water accounts discussed
- A lining up of work programme for the next activities
 - 6.4 “*Study visit to Italy*” is scheduled to 11-14 October 2016
 - 6.3 “*Compilation of water accounts I*” is scheduled to 12-16 December 2016

3. Participants

NSSRA

Component leaders

- Mr. Yurik Pogosyan
- Ms. Nelli Baghdasaryan

Other staff from the division

- Ms. Naira Mandalyan
- Ms. Ani Hambardzumyan
- Ms. Astghik Podmogova

Other staff from NSSRA

- Macroeconomic Indicators and National Accounts Division
- Agriculture Statistics Division
- Industry Statistics Division
- Finance Statistics Division
- Trade and Other Services Statistics Division
- Construction statistics division will also be invited.

Other stakeholders taking part in the activity

Staff from

- RA Ministry of Nature Protection
- RA Ministry of Economy
- RA Ministry of Agriculture
- RA Ministry of Finance
- RA Ministry of Healthcare
- RA Ministry of Territorial Administration and Development
- Commercial organizations
- International organizations (UNDP, USAID, WB etc.)

will also be invited

MS experts

Ms. Simona Ramberti, Expert, Istat

Ms. Donatella Vignani, Expert, Istat

Annex 2: Programme for the mission

Time	Place	Event	Purpose / detail
Monday (16/5) (start at 11:00)	NSSRA	Meeting with BC Component Leader and BC Experts	To discuss the programme of the week Assessment of situation and presentation by BC of the work conducted since last mission
Tuesday, morning (17/5)	NSSRA	Meeting with BC Component Leader and BC Experts	Discussion on data needs and availability Clarification of use of administrative registers Discussion on compilation of Physical Water Flow Accounts tables
Tuesday, afternoon (17/5)	NSSRA	Meeting with BC Component Leader and BC Experts	Monetary supply and use tables: theory and practice Defining and describing needs for new data
Wednesday, morning (18/5)	NSSRA	Meeting with BC Component Leader and BC Experts	Presentation by BC on environmental expenditure accounting (focus on water) in Armenia Discussion of a single study on environmental expenditure accounting
Wednesday, afternoon (18/5)	NSSRA	Meeting with BC Component Leader and BC Experts	Preparation for stakeholder meeting
Thursday, morning (19/5)	NSSRA	Meeting with stakeholders	Meeting with stakeholders
Thursday, afternoon (19/5)	NSSRA	Meeting with BC Component Leader Ad-hoc meetings	Discussion on meeting output/results Defining homework to be done until next mission Discussion about the preparation of study visit to Italy Final clarifications with BC Experts, prepara- tion of report and presentation for BC Project Leader
Friday, morning (20/5)	NSSRA	Debriefing with BC Project Lead- er	Conclusions and decisions and their conse- quences for the next activity and the implied work programme for BC Experts

Annex 3: Persons met

NSSRA:

Mr. Stepan Mnatsakanyan, President of the NSS RA
Ms. Anahit Safyan, Member of the State Council on Statistics of RA
Mr. Yurik Pogosyan, Member of the State Council on Statistics of RA
Ms. Nelli Baghdasaryan, Head of Social Sphere and Natural Protection Division
Ms. Naira Mandalyan, Leading Specialist, Social Sphere and Natural Protection Division
Ms. Ani Hambardzumyan, Junior Specialist, Social Sphere and Natural Protection Division
Ms. Astghik Podpomogova, Statistician, Social Sphere and Natural Protection Division
Ms. Nadezhda Astvatsaturova, Chief Specialist, Macroeconomic Indicators and National Accounts Division

External stakeholders:

Ms. Gohar Harutyunyan, Testing and Programming Specialist, “Information Analytical Centre”
SNCO, RA Ministry of Nature Protection
Ms. Lusine Avetisyan, Division of economic mechanisms, standards and technical regulations of environmental protection

RTA Team:

Mr. Peter Bohnstedt Anan Hansen, Resident Twinning Adviser
Ms. Sona Mirzoyan, RTA Assistant
Ms. Anush Poghosyan, RTA Language Assistant