TWINNING CONTRACT

AM/14/ENP/ST/15

Strengthening of the National Statistical System of Armenia – Phase II

MISSION REPORT

on

Demographic Statistics

Activity 2.3: **Methodology for vital statistics and increased use of electronic data I**

Mission carried out by

Ms Maria Pia Sorvillo,Italian National Institute of Statistics (Istat)
Mr EnricoTucci, Italian National Institute of Statistics (Istat)

8-12 February 2016

Final version

National Statistical Service
Republic of Armenia

Expert contact information

Maria Pia Sorvillo
Istat
Via C. Balbo 16
Rome, Italy
Tel: +390646732907
Email: sorvillo@istat.it

Enrico Tucci
Istat
Viale Liegi 13,
Rome, Italy
Tel: +390646737342
Email: tucci@istat.it

Table of contents

List of Abbreviations

EU	European Union
NSSRA	National Statistical Service of the Republic of Armenia
RA	Republic of Armenia

1. General comments

This mission report was prepared within the Twinning Project "Strengthening of the National Statistical System of Armenia – Phase II". This was the third activity in component 2 and the actions planned for this activity were carried out as scheduled.

The purposes of the mission were:
- Review of data collection and discussion on how to handle electronic data for vital statistics;
- Meeting with data suppliers;
- Review of methodology

Thanks to the competence and the active participation of the Armenian counterparts, the mission provided a clear picture of the current situation and future possible developments to improve the quality of information collected on Vital statistics.
For this reason the consultants would like to express their sincere gratitude to all staff and NSSRA employees met for the kind support and valuable collaboration they provided during this activity. The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, NSSRA, Statistics Denmark and Istat.

2. Assessment and results

Data collection: from paper to electronic data transmission.

With regard to the acquisition method on Vital Statistics, the current situation at NSSRA is a parallel system in which the new electronic system is already working but the old one based on paper forms is still in use. This allows the NSSRA to test the completeness of the new system, check the possible discrepancies that might occur when the old system will stop working and the new one will replace it.
First comparisons were already carried out with regard to November 2015 data on more than 6,000 acts (see tab 1). Results are that the number of births and deaths is exactly the same by both sources. Further analysis will also take into account the comparison between data received on paper and the e-civil system to check consistency of basic individual information for births (age, education, marital status of the mother, sex of the child) and deaths (age, education, marital status, sex).

Table 1. Registered births and deaths by RA Marzes and c. Yerevan distribution, November 2015

	November 2015	
	Births	Deaths
The Republic of Armenia	**3608**	**2349**
Yerevan city	1261	774
Aragatsotn	128	88
Ararat	315	208
Armavir	297	192
Gegharkunik	351	156
Lori	286	226
Kotayk	307	211
Shirak	381	221
Syunik	104	103
VayotsDzor	51	43
Tavush	127	127

With regard to November 2015 and 2 districts, also a qualitative analysis on deaths was conducted. In fact, the coding procedure for the causes of deaths has recently changed. The new procedure establishes that the causes of death are coded directly by each medical doctor at the moment they fill the death certificates and not, as in the past, by a specialised expert in NSSRA. The comparison between the new system of coding (local medical doctors) and the old one (NSSRA expert) showed a perfect correspondence only for 20% of causes of deaths. Summary results are shown in table 2.

Those results were also discussed in a meeting with a representative of the Ministry of Health, to highlight quality issues that could arise in statistics on causes of death, due to the change of the procedure. The Ministry is implementing measures to solve the problem, mainly by training the local medical doctors and monitoring, with the support and the cooperation of NSSRA, results obtained with the new coding system. On the other hand, NSSRA will keep coding the causes of deaths during 2016 according to the old system (internal specialized expert) to be able to carry out the comparison for an adequate period.

Table 2. Causes of death: Comparison between the local medical doctor and the NSSRA expert coding by district. November 2015

	Number of acts			**%**
	Eghegnadzor	**Echmiadzin**	**Total**	**Total**
Perfect correspondence	7	6	13	19,7
Different code but same group of causes of death	15	14	29	43,9
Different code and different group of causes of death	10	10	20	30,3
Missing code in new system	2	2	4	6,1
Total	34	32	66	100,0

Further analysis of this comparison with double coding on deaths certificates will be carried out by NSSRA and the results will be shared with the Ministry of Health. The main aim is to localize the areas and the medical structures where the discrepancies are more relevant.

A technical document is going to be drafted by NSSRA in order to describe the new process of data acquisition, elaboration and validation for vital statistics. The index of the document has been drafted and agreed with NSSRA (see Annex 4). It will give the opportunity to identify the strong and weak points of the process, and to introduce improvements where needed. During the discussion of the index, experts and the NSSRA staff have already identified some possible improvements, such as data editing, imputation of missing values and data analysis. Specific actions could be undertaken during the next mission to support NSSRA in ameliorating those steps of the process.

An agreement with the Ministry of Justice is in the process of being prepared. It should establish that the identification number (Social Security Number, SSN) included in civil registrations is transmitted also to NSSRA. The SSN allows improving the use of administrative data for statistical purposes offering the opportunity to link individual information in birth and death records with information coming from different registers. It is also part of the agreement with the Ministry of Justice the transmission of the country of birth (either of parents of the birth or of the dead person) to NSSRA.

As an output of the previous mission, it was produced an estimate of the under coverage of birth and death registrations, based on the 2011 population census results. Further elaborations carried out by NSSRA take into account the administrative distribution (by district) and geographical typology (rural/urban disaggregation), showing significant differences at the territorial level.

3. Conclusions and recommendations

Analyses on the under coverage of civil registration can provide the interagency WG with evidence about districts where initiatives to raise awareness about the importance of birth and death registration should be considered as a priority. NSSRA also proposed to submit a short questionnaire to representatives of each rural community (community secretariats) as an additional and updated source of information on under coverage, especially in rural areas where it is more likely that births and deaths are not included in the civil registration.

Materials and other initiatives such as visual aids, training sessions, web pages can all be considered as useful solutions to inform civil register officials about the importance of the statistical use of the civil registrations.

Consistency between the causes of death as coded with the old and the new system must be ensured and all measures taken to improve the quality of this information should be documented and reported. Quality checks should be applied by comparing the results of the double coding systems, as planned by NSSRA. Measures taken by the Ministry of Health to strengthen the coding capacities of the local medical doctors could be essential to use the new system for statistical purpose and to ensure the time series consistency.

Capacities in data treatment (control, correction and imputation) and data analysis should be reinforced in order to facilitate the production of reports and statistical information on vital

statistics. In this respect, training the staff working on vital statistics could be crucial to improve the output of the process, through laboratories and specific workshops.

Finally, to ensure a safe and stable internet connection is becoming essential, especially in view of the forthcoming passage to electronic data, to be downloaded periodically from the Ministry's website.

In view of the next mission, planned for September 2016, this is the summary of recommended activities:

To finalize the document on data processing for births and deaths (by 15.6.2016)
To finalize the request to the Ministry of Justice about the new variables to be transmitted to NSSRA (SSN and country of birth) (by 31.8.2016)
To prepare awareness material for civil registration officials (by 30.4.2016)
To compare results of the different coding procedures for causes of death in the pilot areas (on a monthly basis)
To interview rural community secretaries about under coverage in birth and death registrations (by 31.5.2016)

Annex 1. Terms of Reference

Terms of Reference
EU Twinning Project AM/14/ENP/ST/15
8-12 February 2016

Component 2: Demographic Statistics

Activity 2.3: Methodology for vital statistics I

0. Mandatory results and benchmarks for the component

Mandatory results:

- Vital statistics improved concerning data collection mechanisms (transition from paper sources to electronic), coverage, timeliness and quality (July 2017)

Benchmarks:

- Methodology on vital statistics updated (October 2016)
- Improved vital statistics implemented and published (July 2017)
- Staff of NSSRA trained on issues related to vital statistics (July 2017)

1. Purpose of the activity

- o Review of data collection and discussion on how to handle electronic data for vital statistics
- o Meeting with data suppliers
- o Review of methodology
- o To involve relevant stakeholders in the discussions

2. Expected output of the activity

- o Data quality assessed
- o Meeting with data suppliers held
- o Methods to check/integrate available data and possible new data sources identified
- o Survey methodology and legal acts reviewed
- o A lining up of work programme for the next activity (2.5 is scheduled to 26-30 September 2016)

3. Participants

<u>**NSSRA**</u>
Component leaders
- Mr. Gagik Gevorgyan, Member of State Council on Statistics of RA
- Ms. Karine Kuyumjyan, Head, Population Census and Demography Division

Other staff
- Ms.Anna Tokhatyan, Chief specialist, Population Census and Demography Division
- Ms.Narine Grigoryan, Leading specialist, Population Census and Demography Division
- Ms.Anna Grigoryan, 1st category specialist, Population Census and Demography Division
- Ms.Susanna Azatyan, 2nd category specialist, Population Census and Demography Division

<u>**MS experts**</u>
Ms. Maria Pia Sorvillo, Expert, Istat
Mr. Enrico Tucci, Expert, Istat

<u>**Other stakeholders taking part in the activity**</u>
Representatives from:
- Department of Civil Registrations, RA Ministry of Justice
- RA Ministry of Health
- Transactional e-Governance Development in Armenia, mr. Vahagn Mkhitaryan
- Passport and Visa Department, RA Police
- State Economic University of Armenia
will also be invited.

Annex 2: Programme for the mission

Time	Place	Event	Purpose / detail
Monday, morning	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, and presentation by BC of the expected outcome of current mission
Monday, afternoon	NSSRA	Meeting with BC Component Leader and BC Experts	Review of data collection and discussion on how to handle electronic data for vital statistics
Tuesday, morning	NSSRA	Meeting with BC Component Leader and BC Experts	Review of methodology Assessment of data quality Discuss index for document on data processing
Tuesday, afternoon *16:00*	NSSRA *In library*	Meeting with Ministry of Health	Meeting with Ministry of Health
Wednesday, morning *11:00*	NSSRA *In library*	Meeting with BC Component Leader and BC Experts	Presentation by MS on imputation of data Identification of methods to check/integrate available data and possible new data sources
Wednesday, afternoon	Regional office *Armavir region*	Meeting at regional office	Visit to regional office (Armavir region)
Thursday, morning	NSSRA	Meeting with BC Component Leader and BC Experts	Discuss tables on comparison of paper data and electronic data Discuss result of meeting with Ministry of Health
Thursday, afternoon	NSSRA	Meeting with BC Component Leader Ad-hoc meetings	Discuss initiatives concerning awareness of the importance of statistics Discuss possibilities for training of staff
Friday, morning	NSSRA	Meeting with BC Component Leader	Presentation of MS Experts' findings and agreement on the reached conclusions Final clarifications with BC Experts, preparation of report and presentation for BC Project Leader of conclusions and recommendations for the next activity

Annex 3. Persons met

<u>NSSRA:</u>

- Anahit Safyan, Member of the State Council on Statistics of RA
- Karine Kuyumjyan, Head of Population Census and Demography Division
- Anna Tokhatyan, Population Census and Demography Division
- Narine Grigoryan, Population Census and Demography Division
- Susanna Azatyan, Population Census and Demography Division
- Anna Grigoryan, Population Census and Demography Division
- Ruzanna Petrosyan, Information Resources Management and Technologies Department
- Karine Yesayan, Information Resources Management and Technologies Department
- Varsik Senekerimyan, International Statistical Cooperation Division
- Ishkhan Sargsyan, Head of the NSS Armavir Marz Agency
- Anahit Hovhannesyan, NSS Armavir Marz Agency, 1st category specialist
- Hasmik Hovhannisyan, NSS Armavir Marz Agency, statistician
- Anahit Karapetyan, NSS Armavir Marz Agency, statistician

<u>External stakeholders:</u>

- Diana Andreasyan, Head of Health Information-Analytical Center of National Institute of Health, Ministry of Health,

<u>RTA Team:</u>

- Peter Bohnstedt Anan Hansen, Resident Twinning Adviser
- Sona Mirzoyan, RTA Assistant
- Anush Poghosyan, RTA Language Assistant

Annex 4. Draft index of birth statistics

Birth statistics in Armenia: Data sources and statistical processing

Index

1. Birth registration

   In this paragraph, main features of the administrative process related to birth registration are described. Namely:
   - *the civil registration system and its normative basis*
   - *the new e-certificate system, including IT architecture, information collected, validation rules, its links to other DB (e.g. the passports DB)*
   - *issues about coverage, with the relevant tables drawn from census data*
   - *the form (in annex)*

2. Data collection

   Procedure used to download data: link to the web-site, frequency, characteristics of the database, record layout, description of variables, classifications,…

3. Data treatment

   3.1 Preliminary checks
   Quantitative and qualitative checks performed on the downloaded files: checking for completeness in the number of records (comparison with possible external sources, such as the Ministry of health), anomalies in the frequency of specific values (e.g. educational level, recurrent missing values for specific variables. Action taken, checks to improve quality of the source (e.g. direct contacts with the civil register officials, training sessions,….)

   3.2 Statistical treatment
   Checking and editing data: rules for inconsistencies' detection and deterministic corrections
   Imputation of missing values
   Data quality indicators (e.g. percentage of modified records, values imputed,…)
   Software and other IT resources

4. Analysis

   Indicators elaborated for analysis and dissemination, data disaggregations, tables produced
   Software and other IT resources

5. Dissemination

   Frequency and time lag for data availability
   List of publications
   Special elaborations for national stakeholders and international organizations
   Tables available in the NSSRA on-line DataBase