

# TWINNING CONTRACT

AM/14/ENP/ST/15

## Strengthening of the National Statistical System of Armenia – Phase II



### MISSION REPORT

on

#### Innovation Statistics

##### Activity 5.2: Planning of pilot survey

Mission carried out by

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**List of Abbreviations**

EU	European Union
EACU	Eurasian Customs Union
NSSRA	National Statistical Service of the Republic of Armenia
BC	Beneficiary Country
MS	Member State
ToR	Terms of Reference
STI	Science, Technology and Innovation

## 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 second activity in component 5 and the actions planned for this activity were carried out as scheduled.

The purposes of the mission were:

- Development of list of possible indicators
- Development of questionnaire drafted
- Identification of target and frame population
- Identification of sample
- Planning and designing of survey
- Identification of data collection methods
- Discussion on use of administrative sources
- To involve relevant stakeholders in the discussions

The planned activities and the expected output were all achieved.

The MS experts would like to express their sincere thanks to all officials and individuals met for the kind 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 MS experts and do not necessarily correspond to the views of EU, NSSRA, Statistics Lithuania, Statistics Finland or Statistics Denmark.

## 2. Assessment and results

### Expected output of the activity

- Indicators identified;
- Questionnaire drafted;
- Target and frame population identified;
- Sample identified;
- Survey planned and designed;
- Data collection methods identified
- A lining up of work programme for the next activity (5.3 study visit to Statistics Finland in June 2016, and the third mission (5.4) to Armenia in October 2016)

### *2.1. Development of list of possible indicators*

Starting points for the work for identifying the indicators and drafting the questionnaire for the pilot innovation survey in Armenia were the EU regulation on Innovation statistics and the model questionnaire ‘Community Innovation Survey 2014’. This was the latest EU model questionnaire available.

Main Innovation statistics indicators are identified in The Commission Regulation (EU) No 995/2012, implementing Decision No 1608/2003/EC of the European Parliament and of the

Council concerning the production and development of Community statistics on science and technology (in the brackets relations to number of question in RA pilot questionnaire):

1. Innovative enterprises (3.1, 4.1, 5.1, 9.1 and 10.1 questions)
2. Innovative enterprises that introduced new or significantly improved products, new to the market (3.3.1 question)
3. Turnover from innovation, related to new or significantly improved products, new to the market (3.3.3 question)
4. Turnover from innovation, related to new or significantly improved products, new to the firm, but not new to the market (3.3.4 question)
5. Innovative enterprises involved in innovation cooperation (8.1 question)
6. Innovation expenditures (6.2 question)
7. Innovative enterprises that indicated highly important effects of innovation
8. Innovative enterprises that indicated highly important sources of information for innovation
9. Enterprises facing important hampering factors (11 question)
10. Enterprises that developed the innovations itself or together with the other enterprises/institution (3.2.1; 3.2.2, 4.2.1. and 4.2.2 questions)

The questions related to 7<sup>th</sup> and 8<sup>th</sup> indicators were presented to NSSRA but were excluded because of the length of the pilot questionnaire. These can be incorporated in the future surveys.

## ***2.2. Development of questionnaire drafted***

The new questionnaire should follow principles laid down in international questionnaire design. It should have a clear and logical, modular structure. The use of filter questions is recommended to minimise respondents' burden.

Recommendation by MS experts is to implement the harmonized European innovation survey questionnaire along with methodological and quality guidelines with possible national questions. National questions should be defined in co-operation with the stakeholders and users of innovation data.

During the mission the questionnaire was analyzed question after question in order to clarify needs. After the first mission NSSRA had made some nationally interesting proposals for the questionnaire (based on the user needs) – like adding the questions on examples of product and process innovations introduced/implemented – and the questionnaire was went through question by question. The MS experts clarified the status of each question (are the questions mandatory or voluntary in EU countries, are they mentioned in the EU regulation etc.) and commented and made suggestions on importance of questions on the questionnaire. The target was to cover all the mandatory core questions (i.e. mandatory for countries applying Community Innovation Survey) and at the same, covering questions important and most relevant for Armenia.

Special detailed questions and challenges were discussed, like possibility to separately ask about R&D (decision for this was 'no', because it is covered by the question on innovation activities). Some questions were left "open" to wait for Tuesday's stakeholder meeting and opinions arising there. The importance of these questions (e.g. public support and public procurement) was depending on the degree of meaning of these issues in Armenian context.

One clear challenge is availability of resources. Scarce resources may affect choices made for the pilot, either as regards the content of the survey or the sample size. This needs to be taken into account when deciding the final content of the questionnaire. The length of the questionnaire should be tolerable also from this point of view.

On Tuesday's stakeholder meeting, there were important co-operation partners and data users participating (representatives from Intellectual Property Agency, National Academy of Sciences of Armenia and State Committee of Science of the RA Ministry of Education and Science). NSSRA had sent the preliminary version of the questionnaire beforehand to the participants and now at the meeting NSSRA went through the whole modified version question by question. Discussion for the questionnaire was extremely fruitful and useful – co-operation between NSSRA and stakeholders is active which is valuable for statistics. Because of the resources and the uncertain willingness to respond to voluntary surveys MS experts further recommended minimizing the length of the questionnaire. In the case question was not necessarily needed in the pilot, it was recommended to be dropped. It is better to cover less questions – however all the basic ones – and receive data for them than to have too long questionnaire with no responses. The issue as such, i.e. defining an innovation and innovation activity, will be challenging for respondents in any case and especially when it is asked for the first time.

After the stakeholder meeting NSSRA finalized the next version of the questionnaire. At this stage the pilot questionnaire seemed very compact and short enough for being tolerable for respondents and it was a good effort for guaranteeing the possibility to receive data. Questionnaire was now covering the main questions from the EU framework and at the same the most needed aspect from point of Armenia view. Other questions from the EU framework presented and discussed were left to wait for further use. They can be applied later on in forthcoming surveys.

The proposed questionnaire by NSSRA follows the principles of the EU questionnaire design. It has a clear and logical, modular structure with use of filter questions to minimise respondents' burden. Survey questionnaire were once more stylized during the mission and it got ready in a good time before mission ending. The final version is produced in Armenian and in English and the English version is provided to MS experts for example for planning the editing rules.

The questionnaire should be accompanied by instructions to the enterprises (RA inform about a postal questionnaire) with clear definitions and explanations of e.g. technological terms. The need for the further definitions and instructions was discussed. NSSRA may primarily use the material they already have, and for R&D it is used the same definitions than is used for their R&D survey for public sector.

It also turned out that there are some expectations in Armenia to cover also the public sector by innovation survey. The focus of existing project is however on business enterprise sector – according to international standards and guidelines. Public sector innovation would be the issue of other projects. At the moment there exist no international guidelines for compiling statistics on public sector innovation activity. It was however discussed that this issue can be on agenda in a study visit to Finland in June. Statistics Finland has piloted public sector innovation once as a part of the Nordic project (around 5-6 years ago) and this experience and the current international situation can be briefly discussed during the study visit.

### ***2.3. Identification of target and frame population***

The target population of the survey is market active enterprises in Armenia and the frame for sampling should be constructed from the business enterprise register of the NSSRA. The coverage of the survey could follow the coverage of EU survey including enterprises with min. 10+ employees.

NSSRA specialist from Business register produced a list of numbers of enterprises. The MS experts recommend and NSSRA specialists agree to follow international classification of economic activities (NACE rev. 2) and a measure of size of the enterprise (number of employees). On stratification by region are considered to collect information on Yerevan and other regions of RA, because Yerevan has a big influence on country economic situation.

The coverage should follow the coverage of CIS survey including enterprises with min. 10+ employees. Survey size classes (by no. of employees) - 10 – 49; 50 – 249 and 250 +. Number of employees is defined as an average annual.

As regards economic activity classes (NACE rev. 2) the recommendation is 2 digital classifications in the core target population and additional classes of economic activities which are important for RA and will be consistent after meeting with the view of State Committee of Science of the RA.

At the lack of resources MS experts recommend to construct a sample on the basis of a economic activities group mentioned in Annex II section 6 of the Commission Regulation (EU) No 995/2012, implementing Decision No 1608/2003/EC of the European Parliament and of the Council.

### ***2.4. Identification of sample***

Sample size should be determined from balancing user needs and available resources. It was emphasized by the MS experts that the sample should be representative for the target and frame population concerning innovation and should aim at covering innovative as well as non-innovative enterprises.

It is recommended to draw a randomly stratified sample for the survey. The sampling design and the resulting sample size should be appropriate for obtaining accurate, reliable and representative results on the variables and items in the model questionnaire. This objective should be achieved for the overall proportions as well as for the proportions for the different breakdowns.

The unit responsible for the Business Register is expected to assist Social Sphere and Environment Statistics Division with providing the population and drawing the sample. The business register is believed to be able to produce the sample and no coverage problems are foreseen.

### ***2.5. Planning and designing of survey***

The questionnaire and the survey sample were on a good track in the end of mission. After finalizing the questionnaire (checking the filters once more etc.) and finalizing the sample the next issue is the further preparation of the data collection (cover letters etc.). Methods and

methodologies to carry out the data collection and for technical solutions are dependent of NSSRA systems and practices.

Couple of deadlines were discussed and approved together. NSSRA will carry out data collection during the spring so that the (raw, i.e. non-edited) data is ready available by the end of May.

Originally in the work program, defining formal and logical controls were placed in to the activity 5.4. It would be however better to deal with the editing rules earlier so that final fully edited data is there available for activity 5.4 in autumn. This is why the deadline for non-edited data was set to the end of May. It was also agreed that editing rules are covered in study visit.

Another essential deadline is for edited data and it is the end of September 2016. The deadline is set according to working program and forthcoming activity 5.4 which covers some analysis on the data.

## ***2.6. Identification of data collection methods***

The resource situation was not clearly clarified at the time of the mission but the scarce resources were acknowledged. Business enterprise innovation survey is quite extensive and requires significant human resources in the data collection, data treatment, analysis and publishing. If a responding enterprise has difficulties in filling the questionnaire assistance should be provided, which requires resources.

The different data collection methods (online surveys, postal surveys, interviews) were discussed during the mission, but final decision on how to carry out the data collection is dependent on the resources available.

Due to scarce resources the postal survey seems most prominent option at the moment.

The data processing should include editing for logical errors:

- The edited dataset should not have routing conflict between filter and underlying questions.
- Item-non response should be kept and recorded. No imputation should be made from other units (see EU model questionnaire).
- 'Illegal' data values should not enter the final dataset and rather be recorded as item non-response.

## ***2.7. Discussion on use of administrative sources***

After the stakeholder meeting the following was decided:

- Ministry of Economy has information on the patents and other IPR (Intellectual Property Rights). If data users need information on IPR, they can use the data from Ministry of Economy. Questions on IPR can be included in the future surveys.
- Innovation data cannot be compiled from registers or other administrative sources, a dedicated survey to enterprises is needed. The only relevant administrative data as regards innovation survey is business register that is used for defining the target and frame population.

## ***2.8. Lining up the work programme for the next activity***

Next activities of the project are covering the study visit to Statistics Finland in June 2016 and activity 5.4 in autumn 2016.

Timing of next steps was discussed and accepted by all parties, although to be confirmed soon after this mission after checking participants' timetables.

Statistics Finland had drafted a program for study visit in early January 2016. It was accepted by other parties of the project. During the mission there came some further issues along that will be added in to the agenda:

- review on NSSRA data collection carried out in spring, first remarks and some examples
- review on public sector innovation and on Finnish experience from the pilot done earlier
- editing rules for pilot data

These will be added on the program and updated program will be provided to NSSRA and project coordinator.

It was decided that the dates for the study visit will be (Tuesday to Friday) 7–10 June.

There are no changes made for the subject of activity 5.4 although some of the controls will be discussed already during the study visit in the context of editing rules.

## **3. Conclusions and recommendations**

The following summarizes the process before the mission activity 5.4 once more:

- Finalizing the questionnaire and the sample based on the discussions with MS experts
- Preparing all the data collection material based on the practices in NSSRA
- Carrying out the data collection, deadline the end of May (more detailed schedule is up to NSSRA)
- Data editing rules in study visit in June
- Data editing & imputations according to the schedule of NSSRA
- Edited data by the end of September

It should be noted that the success of activity 5.4 is dependent on the availability of data.

## Annex 1. Terms of Reference

<p style="text-align: center;"><b>Terms of Reference</b></p> <p style="text-align: center;"><b>EU Twinning Project AM/14/ENP/ST/15</b></p> <p style="text-align: center;"><b>22-26 February 2016</b></p>
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### Component 5: Innovation Statistics

#### Activity 5.2: Planning of pilot survey

#### 0. Mandatory results and benchmarks for the component

Mandatory results:

- Innovation statistics introduced (July 2017)

Benchmarks:

- Questionnaire for gathering innovation statistics is drafted (February 2016)
- Pilot survey conducted (January 2017)
- Test results analyzed (January 2017)
- Methodology on innovation statistics introduced (April 2017)
- Plan for regular production and publication developed (April 2017)
- Staff of NSSRA trained on issues related to innovation statistics (July 2017)

#### 1. Purpose of the activity

- Development of list of possible indicators
- Development of questionnaire drafted
- Identification of target and frame population
- Identification of sample
- Planning and designing of survey
- Identification of data collection methods
  - Discussion on use of administrative sources
  - To involve relevant stakeholders in the discussions

#### 2. Expected output of the activity

- Indicators identified;
- Questionnaire drafted;
- Target and frame population identified;
- Sample identified;
- Survey planned and designed;
- Data collection methods identified
- A lining up of work programme for the next activity (5.3 is scheduled to June 2016 (study visit to Statistics Finland))

### **3. Participants**

#### **NSSRA**

Component leaders

- Mr. Gagik Gevorgyan
- Ms. Nelly Baghdasaryan

Other staff

- Nazaryan Anahit
- Hakobyan Anna
- Grigoryan Alina

#### **MS experts**

Ms. Mervi Niemi, Expert, Statistics Finland

Mr. Gediminas Samuolis, Expert, Statistics Lithuania

#### **Other stakeholders taking part in the activity**

Representatives from:

- Ministry of Economy of RA
- Ministry of Economy, Intellectual Property Agency of RA
- Ministry of Education and Science of RA, State Committee of Science
- National Academy of Sciences of RA

will also be invited.

## Annex 2: Programme for the mission

<b>Time</b>	<b>Place</b>	<b>Event</b>	<b>Purpose / detail</b>
Monday, morning	Hotel / NSSRA	Meeting with RTA	To discuss the programme of the week
	NSSRA <i>In Library</i>	Meeting with BC Component Leader and BC Experts	Assessment of situation and presentation by BC of the work conducted since last mission  Presentation by BC of the expected outcome of current mission
Monday, afternoon	NSSRA	Meeting with BC Component Leader and BC Experts	Development of list of possible indicators  Development of questionnaire drafted
Tuesday, morning	NSSRA	Meeting with BC Component Leader and BC Experts	Identification of target and frame population  Identification of sample
Tuesday, afternoon	NSSRA	Meeting with stakeholders	Meeting with stakeholders
Wednesday, morning	NSSRA	Meeting with BC Component Leader and BC Experts	Planning and designing of survey
Wednesday, afternoon	NSSRA	Meeting with BC Component Leader and BC Experts	Identification of data collection methods
Thursday, morning	NSSRA	Meeting with BC Component Leader and BC Experts	Discussion on use of administrative sources
Thursday, afternoon	NSSRA	Meeting with BC Component Leader	Presentation of MS Experts' findings and agreement on the reached conclusions
		Ad-hoc meetings	Final clarifications with BC Experts, preparation of report and presentation for BC Project Leader
Friday, morning	NSSRA	Debriefing with BC Project Leader	Conclusions recommendations for the next activity and the implied work programme for BC Experts

## **Annex 3. Persons met**

### **NSSRA:**

- Stepan Mnatsakanyan, President of the NSSRA
- Anahit Safyan, Member of the State Council on Statistics of RA
- Gagik Gevorgyan, Member of the State Council on Statistics of RA
- Nelly Baghdasaryan, Head of Social Sphere and Natural Protection Division
- Yurik Poghosyan, Member of the State Council on Statistics of RA
- Alina Grigoryan, Social Sphere and Natural Protection Division
- Anna Hakobyan, Social Sphere and Natural Protection Division
- Anahit Nazaryan, Social Sphere and Natural Protection Division
- Siranush Zeynalyan, Labour Statistics Division
- Liana Shahbazyan, Finance Statistics Division
- Naira Baboyan, Macroeconomic Indicators and National Accounts Division
- Susanna Khachatryan, Macroeconomic Indicators and National Accounts Division
- Varsik Senekerimyan, International Statistical Cooperation Division
- Vardan Arevshatyan, Business Register Division

### **External stakeholders:**

- Christine Hambaryan, Intellectual Property Agency
- Tigran Arzumanyan, National Academy of Sciences of Armenia
- Arevik Khnkoyan, State Committee of Science of the RA Ministry of Education and Science

### **RTA Team:**

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