TWINNING CONTRACT

CRIS 2015/370-467

Support to the Israeli Central Bureau of Statistics in Improving the Quality of Official Statistics

MISSION REPORT

on

<u>Component D</u>
**Methodological and geo-spatial tools for
improving the quality and efficiency of field surveys**

<u>Activity D.4</u>
**Component D
Managing and monitoring field surveys (including mapping
non-response) using geo-spatial tools**

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List of Abbreviations

BC	Beneficiary Country
DST	Statistics Denmark
CSO	Central Statistical Office – Statistics Poland
CAPI	Computer-assisted personal interviewing
CATI	Computer-Assisted Telephone Interviewing
CAWI	Computer-Assisted Web Interviewing
CAII	Computer-Assisted Internet Interviewing
CAxI	Common name for all above methods of data collection
PAPI	Paper-Assisted Personal Interviewing
EU	European Union
GIS	Geographic Information System
ICBS	Israeli Central Bureau of Statistics
IT	Information Technologies
MS	Member State (of the EU)
ToR	Terms of Reference

1. General Comments

This mission report was prepared as a part of the Twinning Project *"Support to the Israeli Central Bureau of Statistics (ICBS) in Enhancing the Quality of Official Statistics"*. This was the fourth mission of Component D: Methodological and Geo-spatial Tools for Improving the Quality and Efficiency of Field Surveys.

The main activities of the mission were:
- discussion on parameters and dilemmas concerning the creation of enumeration areas (EA),
- presentation of the first pilot for EA's division and discussion about first findings using the proposed EA's for managing and monitoring field surveys including the use of geo-spatial tools for the progress and non-response assessment at different levels of spatial resolution,
- overview by MS experts and ICBS staff on various field surveys, managing and monitoring technics and tools used during the data collection phase supported by geo-spatial applications,
- discussion following the MS expert's presentation titled "Rules of the Territorial Division" about how mapping and a new strategiof territory division can help field operations,
- consideration of the new approach to EA division proposed by MS experts and recommendations for the development of the new country division based on the small statistical units network,
- Discussion on necessary conditions for preparing a draft paper on methodology to manage and monitor progress and non-responses using various tools and methods including geo-spatial applications.
- Formulating conclusions and recommendations

The mission assisted the ICBS and the MS experts in getting an overview of use cases and requirement specifications for combining GIS and other IT tools with methodology for monitoring & management of multi surveys interviewer network.

The experts would like to express their thanks to all officials and individuals met for their kind support and for the valuable information they provided, which highly facilitated the experts' work.

The views and observations stated in this report are those of the consultants and do not necessarily represent the views of EU, ICBS, CSO Poland or Statistics Denmark.

2. Assessment and Results

The current mission focused on the overall assessment of the needs of ICBS concerning specifications for combining GIS – Geographical Information Systems and other IT tools - with methodology for monitoring & management of multi surveys interviewer network underlining different aspects of GIS use in statistical production.

The discussion led to the conclusion confirming the necessity for introducing an effective model of statistical division of country by establishing a stable network of statistical units based on small enumeration areas. Changes of the current definition of enumeration areas (EA) were discussed and concluded as necessary.

All sides agreed that system of statistical division of territory has to be common for all statistical purposes including annual surveys, sampling strategy and censuses (population, housing, economy and agriculture).

The main achievement of the mission was establishing a clear vision concerning the modern territory division system based on small statistical units (newly defined EA), created according to stable maximum limits, and covering the whole territory of Israel. The stable limits have to include maximum population and dwellings' quantity on pointed areas. Additionally, other factors like nationality, language and forbidden areas can be considered.

It has to be underlined that, for the planned future work, the social statistics can profit from wider use of administrative registers produced by ministries and agencies and should be considered as possibilities for burden and cost optimisation of census and surveys. It also concerns the spatial approach in social statistics (use of GIS) to geocoding data from administrative registers based on the stable EA network.

Some ideas concerning merging the monitoring & management system with the system enabling assignment of the enumeration area to interviewers according to optimization of workload and travel distance, taking into account the best knowledge about territory obstacles, has been discussed and concluded as the reasonable solution of integrated use of GIS tools. The discussion yielded several conclusions and recommendations, which can help modernize Israeli social statistics.

The above-mentioned assessments and solutions had been the basis for the conclusions and recommendations presented in section 3.

MS experts together with Twinning Project experts finally concluded:

- Recommendations on methodologies and IT-tools for managing and monitoring field work using geo-spatial procedures during data collection process.
- The revised plan for action / work in component D

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3. Conclusions and Recommendations

In the discussion with the Israeli side, the following conclusions and recommendations were formulated:

1. The main challenge of moving into stable territory division is to establish the complex system as well as the methodology including the proper size assessment of the new statistical units (SU) and the enumeration areas (EA). Based on the Polish example it should not be more than 200 dwellings and 500 inhabitants for an enumeration area and for the statistical units no more than 2,700 people and 999 apartments, respectively. It is also the rule that one SU can consist no more than 9 EAs. In Israel, another thresholds could be applied (e.g. nationality, language, access to roads).

2. Creating boundaries of special areas should take into account the territory barriers, forbidden zones, difficult to reach areas and other obstacles.

3. Geometrical size of these units may vary according to the above mentioned limits. It is also necessary to keep the identification systems and geometry of boundaries for all SU and EAs.

4. The division system has to be stable in time and space as much as possible. Only necessary changes created by urbanization process should be allowed.

5. The sizes of the units have to be suitable for any statistical purposes including censuses.

6. The well fitted smallest statistical areas are most crucial for geocoding, rational preparation of sampling frames and preparing workload allocation. Such a system is the basis for the data collection monitoring and the management system supporting field surveys conducted by interviewers.

7. For harmonization of the Israeli statistics with EU and global statistics (Eurostat and UNECE) it is recommended to keep the division system in accordance to the Global Statistical Geospatial Framework (GSGF) while taking into consideration insights coming from comparison of the statistical and geodetic systems of the territory division presented by the MS expert in "The 10 Level Model" presentation.

8. For preparing workload it is recommended to collect all sampled addresses into the proper enumeration area using x,y coordinates and EA boundaries and next, start to construct unified workflow for multi-survey interviewers on the basis of the EAs.

9. It is recommended to develop the system enabling assignment of the enumeration area to interviewers according to optimization of workload, travel distances while taking into account the best knowledge about territory obstacles (for example specifically marked or empty EAs have to be excluded).

10. For safety reasons concerning the secure work of interviewers in the field, in case of emergency, it is recommended to establish an on-line communication network between hand held devices and dispatcher centers enabling transmission of current x,y position of interviewers - supported by GPS and GIS technology - suitable for introducing the alarm (helping procedure).

11. The ICBS has to define and precisely describe their needs and expectation of the functionality of GIS tools supporting workload preparation and management procedure. The IT experts

from ICBS have to support customization and implementation of GIS modules into statistical production process for all stages.

12. Considering the use of GIS technology, the core business of governmental institutions like ICBS has to be supported mainly by commercial solutions and tools. Some additional functionality and utility could be supported later by implementing open source applications after stabilizing the core business.

13. Consider timesharing of multichannel data collection in the following order: CAWI, CATI, CAPI.

14. Try to abandon paper questionnaires at all.

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

Action	Deadline	Responsible person
Implementing the stable EA statistical units network covering the whole country	January 2017	CBS
Merging the monitoring & management system with the interviewers workload management and implementing the recommended GIS solutions	February 2017	CBS
Reviewing and assessing the results of the pilot based on the newly introduced EA network	April 2017	MS experts