

TWINNING CONTRACT

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Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices

MISSION REPORT

on

<u>Component 1</u>

Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

Activity 1.3.4

Establishing statistical population register based on administrative data sources

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List of Abbreviations

- BC Beneficiary Country
- DoS Department of Statistics
- ESS European Statistical System
- MS Member State
- RTA Resident Twinning Advisor
- STE Short Term Expert
- ToR Term of References

1. General comments

This mission report was prepared within the Twinning Project "Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices". This implementation Short Term Mission was related to "**MR 1.3** Undertake pilot project on how administrative records can be used to strengthen population statistics and inform framing of the 2025 population and housing census". The actions planned for this activity were carried out as scheduled except that Ms. Nicoletta Cibella from Istat only participated with an online presentation Tuesday morning due to some unforeseen circumstances.

The purpose of this activity is to take the first step in establishing statistical population register in Jordan based on administrative data sources:

- Introduction to register types and structure;
- Feedback on descriptive quality assessment (Register profiles) and strucural metadata prepaired by DoS (work in progress);
- Standardization of incoming administrative data;
- Quality assessment of incoming administrative data in practice (work in progress);
 - Measuring over and under coverage;
 - Completeness
 - Timeliness
 - Measurement errors
- Data linking and matching;
- Drafting a step-by-step guideline for establishing statistical registers based on administrative data sources;

The consultants 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 Jordan and which highly facilitated their work. The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, Federal Statistical Office Destatis (DE) or Istat (IT).

2. Assessment and results

The Mission started with a presentation of expectations of Department of Statistics Jordan (DoS). As a clear expectation it was expressed, that the work on building the population register has to be continued. Experience from the experts were considered to be needed for feedback on the register profiles filled by DoS and feedback on the evaluation and one the quality concept developed by DoS so far. Also, the need to plan the next steps for implementing the population and housing census especially for establishing a statistical population register were presented. Therefor experts ideas and experience were considered to be needed.

DoS presented the current status, results and challenges for building up a population register in Jordan. So far DoS identified 14 potential registers that are considered to be used for census 2025. Currently five institutions already corporate with DoS in the way that DoS has been given data access: the civil register, ministery of education, minstery of higher education, health insurance and social insurance.

Cooperation with other data owners

According to DoS expert's one of the key challenges in the process of building up a statistical population register for the census 2025 is the missing commitment and cooperation of other institutions and departments outside of DoS and as a consequence the lack of access to data. The reasons for the lack of cooperation and commitment have been discussed with the experts and possible ways to handle the different reasons were developed:

Although there is a prime minister's letter facilitating the task of DoS in building a comprehensive, up-to-date and accurate national register for demographical, social and economic data, absence of a concrete mandate was identified as the most important reason for the lack of cooperation of the data owners. It was recommended to work towards a specific law or to create new or check and clarify existing Memorandum of Understanding. Another reason for missing cooperation of data owners could be the fear due to confidentiality of the data. Therefor a close dialouge with the data owners could be helpful to gain confidence in handling data in a resposible way. Also to aim for an ISO certification and a law on confidentiality can be beneficial. A third reason for missing cooperation could be the lack of resources in the institutions and departments to cooperate with DoS. One possibile solution could be to support other institutions and departments with trainigs for the staff e.g. in terms of data handling. A possible fear that DoS experts could detect errors in the original data could be a further reason for missing cooperation. Two possible solutions were discussed between experts an DoS to handle this issue: either DoS can offer the data owners to help to improve the register by sharing the detected errors or DoS and the data owner enter into an agreement on not mentioning detected errors.

As a general recommendation the lack of cooperation of data owners should not be accepted as give because a closed cooperation is crucial for a successful register census. Therefor a dialogue to adress the need of cooperation and if necessary solutions for pushbacks should be started beginning with the most important data owners.

Pretest

In antoher session DoS presented their plans for a pretest in the Aqaba Region. It is planned to carry out a combined model including the use of register data and a full survey of the population with additional questions on agriculture, tourism, foreign investment and economy. The interviewers will use tablets with a prefilled questionnaire. Also, there will be tests with an online self response questionnaire and personal interviews. It was highlighted that the Aqaba pretest is an important step on the way to decide on the Census 2025 model. The plan to carry out a big pretest with a complete survey of the regional population was highly supported by the experts an already recommended in previous missions. As far as known by the experts all countries changing census to a register census carried out data collecton parallel by field work and register use at least in a pretest. Furthmore, it is recommended by the experts to work on clear goals of the Aqaba pretest as diffent statistical data will be collected at one time. The comparisons of the results of the survey to civil register to asses over- and undercoverage could be one such goal.

Presentation of statistical population registers in Germany, Italy and Denmark

In three presentations the statistical population registers in Germany, Italy and Denmark were presented.

The current model fort the census 2022 in Germany is a combined model using registers and survey data. The statistical population register is built up with the data from the Germany civil registers. German population register covers in principle all parts of the population, but people might not always be registered at their current place of residence, may not exist anymore or may be missing in the register. Therefore, the census in Germany is conducted by using data of population register with adjustment by the results of a 10% sample survey on households. An above-average number of register errors can be assumed for the so-called special facilities (like prisons and student residences) due to the relatively frequent change of residents and inadequate reporting. That's why a full survey will take place in these special facilities. The survey data from the household sample survey and the survey of people in special facilities is used to identify over- and undercoverage in the civil register. In Germany for data on education an employment no complete registers exist. So, the second objective of the conducted surveys is to collect these data.

As there is no personal identification number in Germany, data from registers and surveys are merged in the statistical population register by using unchangeable personal variables: family name at birth, first name, sex, date of birth and place of birth and the current address (municipal code, post code, street name and house number).

For future census the Statistical office in Germany has started to develop a model for a full register-based census. Part of the new model will be the Signs of Life approach. In the Signs of Life Approach the data from the civil register will compared to several secondary registers at person level. If a person is registered in the civil regsiter and for this person items in other registers are found, this could be a sign of life. An entry of a person only in the civil register and missing entries in secondary registers within the last 12 months are a sign for overcoverage. Similiary entries in secondary register. For the choice of secondary registers it is not important that one secondary register covers the whole population but that all selected secondary registers together cover the whole population.

In 2016, ISTAT (Italy) adopted a modernization programme: a statistical production based on an Integrated System of Statistical Registers (ISSR), combining administrative and surveys data. Data are integrated on the basis of a unique identifier (individual code) generated on the basis of some really distinguishing variables (name, surname, date of birth..) and/or the code of the addresses (address code). Every acquired source has the codes and the sources are merged on the basis of the codes. Basic statistical registers contain the statistical unit identifiers, created in such a way as to guarantee anonymity, as well as demographic variables characterizing each and every unit (for example, gender and date of birth).

The main register at the core of the Permanent Census is the Population Base Register (PBR), whose main administrative source are the Local Population Registers of Italian municipalities. Also, Statistical Base Register of Addresses and thematic registers on education and employment are involved. Surveys will take place to collect data for variable not covered by registers and for the estimation of coverage errors in th PBR. Furthermore, the census surveys will produce the quality measure if the census counts produce by means of exclusively administrative data.

Strengthening the capacity of Jordan's Department of Statistics

The demographic population count in Italy starts from the previous Census outcome and is based on the demographic flows provided by the Municipal Population Registers. The census outcome corrects the population register at the end of each annual round by adding the individuals who are not included in the population register and by removing individuals who are assumed to be erroneously still registered as usual residents. A thematic database (or register), called AIDA, Integrated Data Base of Usual Residents, has been used since 2015 to exploit the Signs of Life coming from the administrative sources and to find relevant patterns useful for population counts estimation. Each presence of individuals in administrative sources (e.g. Labor and Education archive, Tax Returns archive, Earnings, Retired, and Non-Pension Benefits archive, Permits to Stay archive) could provide Signs of Life which are classified according to duration patterns in Italy, type and reliability of the specific source, association with other individual records (e.g. household relations).

Since the 1980s Denmark conducts the population census totally on the basis of register data. Every inhabitant has a personal id which is used in all registers and administrative data.

Preparing a register Census

Following the presentations DoS and the experts discussed on how long it will take to shift from traditional census to combined or full register census. According to the experiences of the experts and as also shown in presentations during past missions, most countries needed about 15 years for this shift. The duration of the transition highly depends on quality and coverage of total population in registers.

In experts view the biggest challenge for DoS is that the civil register does not cover all groups of the relvant population for a census and not at the right place within Jordan. The data of the civil register covers all Jordanians but almost no foreigners. Only foreigners born in Jordan are registered in the civil register. Furthermore, changes of place of residence of Jordanians within Jordan are not necessarily reported to civil register. The personal address of people in the civil register therefore may stay unchanged after initial registration at the address of their parents. Furthermore, the civil register is not corrected by Jordanians moving abroad. In consequence the coverage and the quality of the place of residence in the civil register will probably differ significantly from the real population in Jordan. It has to be assumed that there is overestimation of the Jordanians currently living in Jordan using the civil register and underestimation of foreigner. To cover all parts of the Jordanian population it is crucial that DoS gets access at least to border control data. Secondly the possible statistical population register by merging data from civil register and border control data (and maybe other registers) has to be ckecked in terms of coverate with a field survey.

Delays in the registration process of births, deaths, marriages and divorces are also an issue mentioned by DoS. According to law births and deaths have to be reported to the civil department within 3 months. In the peer-to-peer activity on assessing the quality of selected Jordanian administrative data (civil register, data from ministery of higher educatio and data from social insurance) it was emphasized by the experts to determine the time lag between the event and the registration in the civil register.

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Since the last mission the DoS experts worked further on analysing the data from the civil register. For key variables from the civil register like residence code, date of birth, sex, nationality, social status and family status the completeness has been checked. Evaluations according to gender and region were carried out. So far, the analyses of the variables have shown that the number of missings and the number of wrong/unexpected values were low. It was recommended by the experts to continue this analyses for all variables that are considered to be used in the Census 2025 and to carry out this analyses for all register data available.

In another session DoS presented the draft of their framework "Standards and Procedures for Ensuring Statistical Quality for Evaluating Administrative Registers Data" along with a large draft of quality indicators. The draft covers all international recommended topics. The Expersts recommended that further work could be useful to clarify the indicators, so that they are operable and understood by all datamanagers in the same way. It also important to establish regular meetings with the datamanagers to check on the practicability of the indicators, because they have to calculate the indicators According to experts' experience it is also helpful to focus rather on limited number of key indicators.

3. Conclusions and recommendations

It was concluded that a combined census for 2025 may still be possible even though the time for preparing register use seems very short. A possible way of a combined census could be the use of register data as a base for the prefilling of questionnaires and to check the quality with of the population survey.

To build up a population register, it is important that DoS gets access to data from all registers considered to be used in the census 2025 - especially to border control data. Full access is elementary for a register-based approach to (potentially) cover all groups of the relevant population for a census following international standards in Jordan.

To obtain the access to all relevant registers the experts suggested to analyse the reasons for the lack of commitment and cooperation of other institutions and departments, like a missing mandate, fear in terms of confidentiality of the data, missing resources and possible quality problems in the registers. The experts recommended register specific analysation of possible reasons followed by measures such as

- specific law
- check and clarify MoU
- ISO certification
- Close dialouge with data owners
- Law on confidentiality
- Support other institutons/ departments by training
- Agreement on helping to improve register or on not mentioning detected errors in the data.

Strengthening the capacity of Jordan's Department of Statistics

It is furthermore recommended to continue filling the register profiles for all registers and administrative data sources DoS has access to as detailed as possible. For each source the following items could be checked and documented to get a first overview:

- Number of records
- Completeness of variables
- Variable format as expected
- Number of entries and missings for each variable
- Spread of numerical variables (min, max, average, 5% and 95% -percentile)
- For date variables: date format, plausibility of dates, 5% and 95% percentile
- for categorial variables: Values and their meaning, wrong values, number of wrong entries
- interplausibility of the variable values
- evaluations on sex, age groups and areas

As next steps it should be considered to work on hypothesis on the Census 2025 model parallel to execution of the Aqaba pretest. Another important point is a draft of the IT-requirements needed to conduct the census 2025 such as tablets, data transmission, database, programs, training of staff. Also, a draft of the project management (organization, time, resources) with clear responsibilities should be implemented within the next months.

Annex 1. Terms of Reference

Terms of Reference

EU Twinning Project JO 21 ENI ST 01 22

Component 1:

Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

Activity 1.3.4:

Establishing statistical population register based on administrative data sources

Tentative dates: 09 – 12 October 2023

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List of abbreviations

- BC Beneficiary Country
- DoS Department of Statistics
- ESS European Statistical System
- MS Member State
- RTA Resident Twinning Advisor
- STE Short Term Expert
- ToR Term of References

0. Objective and Mandatory Results for the component *Objective*

To prepare a roadmap for the development of an integrated administrative data system for Jordan, and conduct pilot projects on creating an SBR and strengthening population statistics.

As the development of a fully integrated administrative data system is a long-term project. The main focus of the Twinning project will be on specific pilot projects where the use of administrative records can address key challenges currently faced by the DoS. These pilot projects will constitute the first steps in rolling out a roadmap for the Jordanian statistical system by providing a template for expanding the use of administrative data across the wider statistical system over time. Specifically, the pilots for the Twinning project will focus on the development of a statistical business register (SBR) and improving the quality of population statistics.

In addition to improving population estimates, administrative data can also contribute to refining the scope of the 2025¹ General Population and Housing Census (COP) questionnaire, thereby freeing up resources in the DoS.

This sub-component will examine how administrative records can provide new source data to better monitor population inflows and movements across governates and municipalities. A pilot project will assess how administrative data (e.g., from the Civil Status and Passports Department) can be combined with DoS data such as the CoP to strengthen population statistics. The Twinning project may wish to explore data sources other than administrative data – for instance, Cities and Villages Development Bank (CVDB) compiles data at small area level on population movements.

Administrative data on population attributes may also help in replacing data currently collected in CoPs. This sub-component will assess how administrative data can help in framing the questionnaire for the 2025 Census, with particular focus on the potential to free up resources in the DoS.

Recently the Jordan Economic Modernization Vision 2030 was launched and "Smart Jordan" was identified as one of the eight Growth Drivers to implement the Economic Modernization Vision. The 'Smart Jordan Driver' includes seven sectors where data is one of them. This indicates the national interest to ensure constant and reliable data sources, and robust statistical systems that contribute to timely and informed policy making. It is expected that one of the measures that will be taken is to transform Jordan's Department of Statistics (DoS) into an interactive National Statistical Center (NSC).

¹ Might be postponed to 2026 – still not decided

Component 1 is sub-divided in five sub-components each with a Mandatory Results (MR) and two to four indicators of achievements associated with the sub-component.

Mandatory results and indicators for achievement for each sub-component

An integrated administrative data system for Jordan MR from the Twinning Indicator		
Fiche		
MR 1.1: Compile an inventory of administrative data on business and households and an indicative roadmap for inclusion in an integrated system	Indicator 1.1.A: Inventory of administrative data variables and detailed supporting metadata prepared	
	Indicator 1.1.B: Tentative roadmap prepared for inclusion of data in integrated system	
MR 1.2: Pilot project to develop strategy for integrating administrative data sources for the purposes of creating an SBR	Indicator 1.2.A: Administrative data sources identified and assessed and plan developed for integrating these with Census of Establishments (CoE) information in an SBR	
	Indicator 1.2.B: Documentation prepared on database structures and compliance with statistical standards, classifications (e.g. ISIC, Rev 4) etc. and use of common identifiers etc.	
	Indicator 1.2.C: Explore how SBS can benefit other statistical domains in the DoS	
MR 1.3: Undertake pilot project on how administrative records can be used to strengthen population statistics and inform framing of the 2025 CoP questionnaire	Indicator 1.3.A: Inventory of data sources prepared and assessed and action plan for incorporation in DoS statistics developed	
	Indicator 1.3.B: Methodology developed for incorporating administrative data	
	Indicator 1.3.C: Documentation prepared on statistical standards, classifications, identifiers, mapping etc.	
	Indicator 1.3.D: Review of how administrative data can assist in developing the COP 2025 questionnaires	
MR 1.4: Develop strategy for ensuring flows of data between the DoS and counterpart institutions are established on an ongoing basis for pilot projects above	Indicator 1.4.A: Review of technical infrastructure for data transfers and action plan prepared based on 1.1 and 1.2 above	
	Indicator 1.4.B: MoUs agreed between DoS and partner institutions	
	Indicator 1.4.C: Agreement on statistical standards, classifications, identifiers etc. between DoS and partner institutions	
	Indicator 1.4.D: Review of data flows within the DoS	
MR 1.5: Implement training programs and develop training materials both within DoS and with partner institutions on the use of administrative records for statistical purposes, based on pilot projects above	Indicator 1.5.A: Detailed documentation on statistical standards, classifications, identifiers etc. developed.	
	Indicator 1.5.B: Comprehensive training programs and workshops provided for DoS staff and partner institutions	
	Indicator 1.5.C: DoS leadership role in ensuring proper statistical standards applied across the Jordanian statistical system reinforced.	

Table 1: Mandatory results and indicators for achievement (IA) for each sub-components within Component 1:

 An integrated administrative data system for Jordan

1. Purpose of the activity

The purpose of this activity is to take the first step in establishing statistical population register in Jordan based on administrative data sources:

- Introduction to register types and structure;
- Feedback on descriptive quality assessment (Register profiles) and strucural metadata prepaired by DoS (work in progress);
- Standardization of incoming administrative data;
- Quality assessment of incoming administrative data in practice (work in progress);
 - Measuring over and under coverage;
 - o Completeness
 - \circ Timeliness
 - Measurement errors
- Data linking and matching;
- Drafting a step-by-step guideline for establishing statistical registers based on administrative data sources;

2. Expected output of the activity

- Activity report;
- A common understanding of best practices for integrating administrative data in the statistical production process has been obtained;
- A common understanding of structure and requirements for establishing registers taken
- Practical experiences in evaluating quality of administrative data obtained taking outset in data from Jordan;
- Indicators for quality of administrative data calculated for selected administrative sources calculated;
- First draft version of a population registers in Jordan created;
- Step by step guideline establishing statistical register based on administrative data sources;

3. Participants

MS Short Term Experts (STE's)

- Mr. Stefan Dittrich, Head of the Census Division, Destatis (DE)
- Ms. Sarah Wöhr, Assistant Head of Section, Register of addresses and Reference data, Destatis (DE)
- Ms. Nicoletta Cibella, Researcher, Division for Population Census and Social Surveys integration, Istat, (IT)

DoS experts

DIRECTORATE OF DATA MANAGEMENT

Administrative Data Division

- Mr. Safwat Radaideh, Head of Administrative Data Division
- Mr. Mohammad Alomari, Statistician, Administrative Data Division
- Ms. Amani Judeh, Statistician, Administrative Data Division
- Ms. Lina Al-Jazazi, Statistician, Administrative Data Division
- Mr. Abedlwahad Al-Haraizeh, Statistician, SBR Division

DIRECTORATE OF HOUSEHOLD AND POPULATION Poverty, Household Income and Expenditure Division

- Ms. Sana AlMomani, Statistician, Household and Population Surveys Directory
- Ms. Manar Al-Jokh, Statistician, Household and Population Surveys Directory

DIRECTORATE OF METHODOLIGIES AND DATA DIVISION Quality Assurance Division

- Mr. Thafer Al-Shawoura, Quality Department
- Mr. Derar Jawarneh, Statistician, Quality Department

DIRECTORATE OF ELECTRONIC TRANSFORMATION AND IT

• 2 participants - still to be selected

Twinning team

- Eng. Mohammad Khalaf, Director of Sustainable Development Unit, Department of Statistics (DoS), Jordan (RTA Counterpart)
- Dr. Charlotte Nielsen (RTA)
- Ms. Zaina Amireh (Language Assistant)
- Ms. Thekra Altorah (RTA Assistant)

4. Resources

Translation and interpretation will be provide throughout the activity. Translation will be provided as sequential translation. Therefore, please keep make frequent breaks when presenting and talking allowing our project translator to provide as accurate a translation as possible.

The venue will the Meeting room at DoS. Flip-overs and other office material will be available.

5. Overall agenda

Proposal for a tentative agenda

Day 1 (09:30 – 15:00):

- BC and the Twinning team: Welcome
- **BC:** Presentation of current status, results and challages for building a population register in Jordan;
- **MS:** Introduction to the population registers in Germany, Italy and Denamrk;

Day 2 (09:30 – 15:00) - Occasionally the work will be split into two groups one working with data and another group working on best practices:

- **MS:** Summary of day 1
- **BC and MS:** Peer-to-peer activity on assessing the quality of selected Jordanian administrative data including
 - Standardization of incoming administrative data;
 - Quality assessment of incoming administrative data in practice
 - Measuring over and under coverage;
 - Completeness
 - Timeliness
 - Measurement errors
 - \circ Data linking and matching;

Day 3 (09:30 – 15:00) - Occasionally the work will be split into two groups one working with data and another group working on best practices:

- **MS:** Summary of day 2
- **BC and MS:** Peer-to-peer activity on drafting a step by step guideline establishing statistical register based on administrative data sources
- Peer-to-peer activity on building a population register in Jordan
- Day 4 (09:30 15:00):
 - **MS:** Summary of day 3
 - **BC and MS:** Follow up from the previous days
 - **BC and MS:** Agreement of next steps to be taken
 - **BC and MS:** Summing up and conclusion

6. Current Status

Figure 1 summarize the inventory of available and potential data sources for establishing for population statistics and to be used for a combined General Population and Housing Census (CoP) in 2025. Detailed register profiles, including a total list of variables as well as Mission Reports are provided seperately.



Figure 1: Simplified overview of available and potential administrative data sources for population and housing statistics and for informing framing of the 2025 General Population and Housing Census (CoP) questionnaire. Blue boxes represent already available administrative data in DoS. Grey boxes with represent potential administrative data sources with an expected significant value for building a high quality population register in Jordan that DoS currently does not have access to. In is worth emphasizing that without access to data from the Residency and Boarder Control Department it will not be possible to include non-Jordanians.

SANAD is the the gateway to digital government services for people living in Jordan. The "Sanad" application provided by Minister of Digital Economy and Entrepreneurship (MoDEE) that link more than 100 digital services for the following Institutions and Ministries: Civil Status and Passports Department; Greater Amman Municipality; Department of Lands and Survey; Ministry of Justice; National Aid Fund; Ministry of Social Development; Ministry of Industry, Trade and Companies Control Department. The possibility to get access to these data has never been explored by DoS.