

TWINNING CONTRACT

JO/13/ENP/ST/23

Strengthening the capabilities of the Department of Statistics in Jordan



MISSION REPORT

on

Activity: 1.17 Follow-up on work done and recommendation for future work

Mission carried out by

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List of Abbreviations

DoS	Department of Statistics of Jordan
SUT	Supply and Use tables
ToR	Terms of Reference

1. General comments

This mission report was prepared within the Twinning Project "Strengthening the capabilities of the Department of Statistics in Jordan". It is the final mission to be completed within Component 1 on National Accounts of the project.

The purposes of the mission were:

- To present the finalized version of the supply and use table for 2010 and an industry by industry symmetric I-O table based on the final version of the SUTs.
- To present and discuss how outstanding issues from the previous mission have been solved.
- To discuss the present status of the project and to sum up strengths and weaknesses of available source data.
- To show how the SUTs for 2010 can be converted from ISIC 3.1 to ISIC 4 as soon as double-coded source data for 2011 is available.
- To establish an overview of the extensions and corrections needed when the new SUTs shall comply with SNA08/ESA10 rules.
- To prepare recommendations regarding the sustainability of the achievements
- To prepare recommendations for the future work
- To identify needs for further support

The consultant would like to express their thanks to all officials and individuals met for the kind support and valuable information which he/she received during the stay in Jordan and which highly facilitated the work of the consultant.

This views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, DoS, Statistics Denmark or Istat.

2. Assessment and results

2.1 Status at the beginning of the project:

The Directorate of National Accounts was established on 15 September 2010. It consists of three divisions, namely: A - The Annual Accounts Division, B - The Quarterly Accounts Division and, C - The Input-Output Statistics Division. The total number of the staff of this Directorate was at the beginning of the Twinning 17 employees working in various divisions. Before the Twinning, the Directorate had already achieved remarkable progress at the international and regional levels that added to its credit. Despite this, the Directorate endeavoured for further progress and improvement.

The methodology on which National Accounts were compiled in Jordan was a mix of SNA68 and SNA93. An updated manual, SNA08/ESA10, for compiling National Accounts was published just before the project began.

DoS was estimating GDP from the production side and thus needed to learn more about the income and expenditure approaches. Also, there was a need to learn more about the methodology for change of base year in the fixed price calculations. Similarly, there was a need to learn more about how current accounts could be improved.

The focal point in the component was agreed to be the work on the supply and use tables continuing the work DoS was already doing in this field. The aim was to use the supply and use tables as a basis for updating the input-output tables.

Within DoS a huge effort had already been invested in making detailed source data available for calculation of the new SUTs for 2010. What was missing was a framework for reconciliation of supply and use on the product level that could be used to create a balanced system of SUTs. Data on supply and use had already been distributed by detailed CPC -products for most industries, but a product classification that would be appropriate for the SUT-framework with a number of products greater than the number of industries still needed to be defined. During the early missions a product classification was chosen with 250 products each defined as aggregates of CPC-codes.

The National Accounts Directorate had under the EU-financed MEDSTAT-programme been supported in their work to merge environmental accounts with the National Accounts. The Twinning project also looked at the compilation of satellite accounts for agriculture and how they could feed into National Accounts, for instance, by using the similar classifications and concepts.

Within the twinning project co-operation was established between DoS and Istat on a system for estimation of gross value added in non-observed economy. The results from this project came in time to be included in the GVA-estimates of the SUTs, but required further elaboration before it could be translated into supplements to output- and input values of specific industries.

The data for 2010 was available according to the ISIC 3.1 industry classification. For the year 2011 basic statistics would be available coded by ISIC 4 as well as the old ISIC 3.1. This “double-coded” statistics would, however, not be available until the end of the present project and it was decided to draw up the new SUTs according to ISIC 3.1.

2.2 What have been achieved?

When decisions on the size and dimensions of the SUT system were taken the next stage in the project consisted in bringing the source data on a common form as Excel-sheets with a common well defined format. Missing source data still had to be identified and made available. The source data was entered into an Excel-framework containing supply at basic prices, uses at purchasers’ prices as well as the valuations layers from basic prices over trade and transport margins, other taxes less subsidies to VAT as separate matrices.

A system of Excel-macros written by a Danish expert has been used to enter, update and balance the product balances. DoS-personnel have been working with the removal of initial imbalances under supervision of Danish experts.

The compilation of all valuation-layers from basic to purchasers’ prices highlighted the need for further distributions of trade and transport margins and taxes on products by products. Furthermore VAT had to be distributed by products on the uses side. This required that non-deductible VAT on purchases had to be calculated for all combinations of products and uses. For this purpose a model of the Jordanian VAT-legislation for 2010 was built into the Excel-framework.

By common efforts it has been possible to find solutions to most of the questions raised looking at the imbalances that appeared when data was entered into the SUT-framework. At the start of the previous mission a first version of a set of balanced SUTs had been compiled. As one could expect the balancing revealed a number of problems that ought to be solved before the SUTs could be accepted as a description of the Jordanian economy.

During the previous mission such outstanding issues were discussed and as far as possible the solution to each problem was agreed upon. Then before this last mission the Danish experts had drawn up the necessary corrections as Excel-sheets. Each of these solutions was presented to the DoS-personnel. Among these outstanding issues can be mentioned:

- Water is now split into two products, untreated water from wells or collected surface water, and “treated water” as it is delivered from water works as tap-water, by tank-trucks or in canisters.
- Similarly electricity is divided into two products: Electricity (typically high voltage) imported or traded between power stations or distribution companies and electricity (typically low voltage) distributed to end-users as intermediate consumption or household consumption.
- It was decided to assume that production within general government is correctly calculated as the sum of costs. Hence government final consumption is reduced in those cases where other sources (BoP) show higher values for public sales revenue than originally shown in the calculation of government output.
- Most of the original input of health services in industry 75, Public Administration, Defence, Social Security, must be considered health services that should not end up as final consumption of administration. The input is moved to industry 85 where it will contribute to a production whose use is final consumption of health services.
- The output from hospitals is still assumed to be higher than the original estimate to allow medical tourism to have a significant value, but meetings with people from the Central Bank, the Ministry of Finance and DoS’s tourist statistics left the impression that this income has probably been exaggerated in some of the articles found in the internet. The final value of health services is now a compromise based on the assumption that much of the income from medical tourism is in fact sale of pharmaceuticals, accommodation- and catering services.
- A large input of electric cables needed for input in the electronics industry was simply not available according to foreign trade statistics. Instead it seems reasonable to assume that most of this equipment should have been coded as raw materials and parts for electronic equipment, for which the import figure would otherwise have been incredibly high. Output from assembling of these electronic parts is reclassified as radio, TV or other electronic equipment that could be used in the domestic economy as well as abroad.
- In the previous mission it was found that input of food and beverages was totally missing in the industries 75 and 85. It was, however, possible to find reasonable estimates of total food and beverage consumption in these two industries. These totals have now been distributed by products based on the structure of household consumption and input in restaurants. In the final balancing some service-inputs in these industries are reduced instead.
- After final balancing Input in the construction industry ended up being almost 150 m.JD bigger than the original estimate after final balancing. As the estimated value of output in this industry is considered less reliable than the values of GVA and available building materials, the output value is adjusted upwards by some 140 m.JD that is assumed to be production of dwellings.

There seemed to be consensus, that these last corrections are accepted for now and that the current, finalized, version of the SUTs shall be treated as the final result from the project. It means that DoS now has a set of balanced supply and use tables for the year 2010 that can be used for rebasing of the series in current national accounts.

Input-output table

Based on the new SUTs a symmetric Input-Output table has been compiled. The new input-output table for 2010 has been compiled directly from the SUT adding only Gross Value Added data that are not part of the SUT.

Gross Value Added is the sum of three items 1) Other taxes on production, net 2) Compensation of employees 3). These data comes from other sources and must be arranged to comply with the input-output table. The breakdown by industry of those numbers must naturally be the same as in the SUT. Even though all three series can be obtained individually, the sum of the (GVA) by industry by definition has to equal Total Output less Total Input (purchaser’s prices). Therefore it turned out to be

necessary to balance the block of GVA in a RaS procedure in order to make the entire table balance. This procedure was described during the last mission.

In the process of constructing the core of the input-output table (everything except GVA) it was necessary to make a few but crucial assumptions about the relationship between the goods supplied and the use of them. There were a few different assumptions to choose from each leading to different input-output tables. The main difference is whether the resulting table is a **product by product** table or an **industry by industry** table. There is an old discussion among input-output economists about which assumption and in turn which type of table is preferable. Based on many years of experience in Statistics Denmark the assumption chosen was that *each product has its own specific sales structure, irrespective of the industry where it is produced* which is also called the fixed product sales structure. This assumption is the most widely used, not only because it is more realistic than its alternatives, but also because it requires a relative simple mechanical compilation procedure. Furthermore, it does not generate any negatives in the IOT that would require manual rebalancing. It leads to the compilation of a product by product table for Jordan.

This is entirely the choice of the experts. DoS is by no means tied by this decision. With the SUT and the list of so-called characteristic industries that was compiled during the last mission as well as a significant amount of rearrangement and balancing of data, it will be possible to implement another assumption and to end up with a product by product table.

Even though the compilation procedure requires a number of matrix operations normally carried out in dedicated software like SAS, GAUSS, R or similar, it turned out to be possible to carry out all of the calculations in Excel. In the short run this is a good solution since it is manageable without acquiring any new computer programming skills. However, the compilation procedure is more open to human errors in Excel than in a software dedicated to matrix operations and also applications and analyses are more easily carried out in a matrix software. Therefore the recommendation still is – in the longer run – to try to transfer this job to software other than Excel.

In a couple of sessions during one of the missions it was illustrated how the SIOT can be used to set up an input-output model that can be used for various analyses. It is recommended to continue to learn to make such calculations and preferably to publish some of them.

2.3 What must be done next?

It must be underlined that the new SUTs and I-O tables are still based on the old industry classification ISIC 3.1 that will need to be replaced by the ISIC 4 classification as soon as possible. Furthermore, in general, the present SUTs still follow the recommendations from SNA93/ESA95 that should be replaced by the recommendations from SNA08/ESA10.

Conversion from old to new ISIC:

It was recommended by the Danish experts that the 2010 SUTs are converted from ISIC 3.1 to ISIC 4 using the knowledge obtained from the double-coded primary statistics for 2011 when it is available. SUTs for 2011 or a later year will have to be compiled using the new ISIC. Conversion of the 2010 matrices will make it much easier to reuse the structures from 2010 in the compilation of SUTs and symmetric I-O tables for following years.

The Danish experts showed techniques that are appropriate for such an industry-conversion. As a starting point each “old” industry may be split into parts belonging to different “new” industries based on the shares of total industry output or input. It was shown that the resulting columns for industry outputs and inputs should at least be modified using common sense with respect to where the outputs and inputs belong in the new classification. It was furthermore demonstrated how the existence of double-coded basis statistics will greatly enhance the possibilities for a realistic conversion of the earlier tables.

An Excel-workbook containing an example on how to convert the newly balanced SUTs for 2010 from ISIC 3.1 to ISIC 4 using percentages “borrowed” from another country was presented to the DoS staff.

Implementation of changes required by SNA08/ESA10:

In the last mission the requirements of the new SNA was discussed. A number of examples of manual changes that will probably have a significant effect on the Jordanian figures were discussed. Among these can be mentioned:

Changed definitions of financial services,

- Output of the Central Bank is not considered to be FISIM,
- FISIM must be distributed by users, and imports and exports of FISIM should be estimated.
- Negative output of non-life insurance should be avoided. Output should now be calculated either by adjusted instead of actual damages or by sum of costs

The “asset-boundary” has changed:

- Military weapon systems should now be classified as GFCF while single-use items as ammunition should be military inventories. At the moment this value is unknown, but it is probably – with some uncertainty – possible to make and estimate based on import figures.
- Land improvement should be GFCF separated from land itself.

It may seem somewhat unclear where and to which extent GFCF in intellectual property has been taken into account in the existing Jordanian national accounts.

- Already according to SNA93 GFCF should include software and databases, mineral, oil and natural gas exploration and originals within art and entertainment.
- In SNA08/ESA10 intellectual property should furthermore include research and development.
- Own-account production should be valued at basic prices.

Some forms of GFCF in intellectual property will probably need to be estimated indirectly by the number of people assumed to be working on own account production of software or research and development in combination with assumptions on their wages and salaries and a mark-up for other expenses plus operating surplus. It may be appropriate to conduct surveys with the specific purpose to obtain knowledge in these areas.

Import and export of goods should now be recorded by “change of economic ownership”. This change has at least three important consequences:

- Import and export of goods for processing is not included in foreign trade when no change of ownership has taken place. On the other hand the processing is shown as “manufacturing services” purchased by the owner of the processed goods. This may be relevant if Jordanian import and export contain e.g. electronic parts that are assembled in Jordan or textiles that are used for production of clothes in Jordanian factories. It could be possible to identify a few enterprises that are operating within such areas and to estimate the need for changes to foreign trade on the product level caused by these units.
- “Merchanting”-services are now also reflected in foreign trade in goods.
- GFCF in construction produced by non-resident enterprises is not – as hitherto – treated as produced by an imputed resident unit. Earlier the import and export figures for construction services could only contain the value of repair and maintenance work. To follow the new manual it is necessary to know import and export of all construction services.

2.4 Sustainability of the achievements:

The existence of new SUTs does provide an immediate opportunity to adjust the levels of the series in the current national accounts.

To obtain the full benefit from the work it is, however, important that the staff of DoS is able to maintain the system that has been created. It is necessary that they can carry out the conversion from old to new ISIC and that they can enter the adjustments needed to comply with the new SNA/ESA. This will probably require continued exercise in use of the system. It could also require some further assistance from the Danish experts.

It should be possible to produce SUTs on a more regular basis if the necessary skills are available. It does not necessarily require an annual effort like the one that was needed for compilation of the 2010 tables. Annual SUTs can be produced by extrapolation from the benchmark tables, with new figures for production and foreign trade and new target values for industry inputs and final uses. These targets will usually already need to be estimated as a part of the compilation of current national accounts. DoS may, however, wish some assistance if they are going to build new systems for annual compilations.

Any new system will need to be maintained. It is important that DoS can rely on having people with the necessary qualifications on a permanent basis.

In order to achieve support for and interest in the results also outside of DoS, it is important to publish the data and to make them available for external users. It would be very positive for the dissemination if data would be accompanied by a couple of analyses based on the input-output model as it was discussed during the last missions. Also, it seems to be a good idea to initiate cooperation with the Ministry of Planning who made another version of the 2010 input-output table in order try to reach a common understanding of the DoS version as the official version. A continued existence of two different versions of the same table will undermine the credibility of both of them.

3. Conclusions and recommendations

- Preparations should be made to adjust existing national account series to the new levels. This will include the new estimates for non-observed economy. One should, however, keep in mind that the effect of adjustments to the figures that can be required by the introduction of SNA08/ESA10 is not known yet.
- DoS should start working on the transformation of the 2010 SUTs to ISIC 4 as soon as double-coded primary statistics is available.
- DoS should investigate the relevance and implications of the various changes between old and new SNA/ESA. If corrections to existing figures are required it may be necessary to collect supplementary information by surveys. It may be to establish benchmarks only, or it might be the start of some regular surveys.
- It should be considered in which form the work on SUTs shall be continued. With some intervals a set of new benchmark SUTs will be needed.
- In the years between benchmarks it could be possible to compile SUTs and I-O tables utilizing the structures from the latest benchmark table. Such tables should of course preferably contain the detail required for reporting to international bodies, but they do not necessarily need the full dimensions of the benchmark table.
- The issue “SUTs in constant prices” have been mentioned but has hardly been discussed during the missions. When SUTs are produced regularly the SUT-environment is in fact a very good framework for calculation of national accounts figures in constant (previous years’) prices. This should be considered by DoS. Its implementation may, however, depend on further assistance from outside.

- Initiate cooperation with the Ministry of Planning in order try to reach a common understanding of the DoS version as the official version.

Identification of needs for additional support:

It was mentioned during the last mission that DoS would appreciate if the Danish experts could continue their assistance e.g. in form of two missions each of the next two years.

Annex 1. Terms of Reference

Terms of Reference EU Twinning Project JO/13/ENP/ST/23 26-30 April 2015

Component 1: National Accounts

Activity 1.17: Follow-up on work done and recommendation for future work

0. Mandatory results and benchmarks for the component

- The national accounts system in Jordan updated to SNA 2008 (Apr 2015)
- The national accounts system in Jordan will cover the informal sector (Apr 2015)
- Assessment report on current situation (Jan 2014)
- Review of the GDP methodology (Apr 2014)
- Plan for how to change base year in the fixed price calculations (Jan 2015)
- Plan for how to improve the current accounts (Jan 2015)
- Present and discuss the concept of different types of agricultural accounts (Jan 2015)
- Data sources, compilation methods, and balancing in relation to supply and use tables reviewed and updated towards SNA08 principles (Apr 2015)
- Provide recommendations on how to update input-output tables (Apr 2015)
- Update the methodology for calculation the informal sector (Apr 2015)

1. Purpose of the activity

- To discuss any outstanding issues with relation to the topics in the component.
- To discuss the status regarding the component at the beginning of the project
- To discuss the status of the project results
- To prepare recommendations regarding the sustainability of the achievements
- To prepare recommendations for the future work
- To identify needs for further support

2. Expected output of the activity

- Recommendations prepared for outstanding issues with relation to the topics in the component
- Description of the status regarding the component at the beginning of the project
- Description of the project results
- Recommendations prepared on the sustainability of the achievements
- Recommendations prepared on the future work
- Description of needs for further support

Annex 2. Programme for the mission

Time		Place	Event	Purpose / detail
Sunday, morning	08.30 – 10.00	DoS	Meeting with RTA	To discuss the programme of the week
Sunday, morning	10.00 – 12.00	DoS	Meeting with BC Component Leader and BC Experts	Discussions of the week's programme Discussions of any outstanding issues regarding the topics in the component and especially Activity 1.10 on Input-output tables.
	12.00 – 01.00		Break / Preparations / Report writing	Break / Preparations / Report writing
Sunday, afternoon	01.00 – 03.30	DoS	Meeting with BC Component Leader and BC Experts	Continued
	03.30 – 04.00		Preparations / Report writing	Preparations / Report writing
Monday, morning	08.30 – 09.00	DoS	Preparations / Report writing	Preparations / Report writing
	09.00 – 12.00		Meeting with BC Component Leader and BC Experts	Discussions regarding the status of the topics in the component at the beginning of the project
	12.00 – 01.00		Break / Preparations / Report writing	Discussions of the status of the project results
				Break / Preparations / Report writing
Monday, afternoon	01.00 – 03.30	DoS	Meeting with BC Component Leader and BC Experts	Continued.
	03.30 – 04.00		Preparations / Report writing	Preparations / Report writing
Tuesday, morning	08.30 – 09.00	DoS	Preparations / Report writing	Preparations / Report writing
	09.00 – 12.00		Meeting with BC Component Leader and BC Experts	Discussions on how the achievements can be sustained
	12.00 – 01.00		Break / Preparations / Report writing	Break / Preparations / Report writing
Tuesday, afternoon	01.00 – 03.30	DoS	Meeting with BC Component Leader and BC Experts	Continued.
	03.30 – 04.00		Preparations / Report writing	Preparations / Report writing

Wednesday, morning	08.30 – 09.00	DoS	Preparations / Report writing	Preparations / Report writing
	09.00 – 12.00		Meeting with BC Component Leader and BC Experts	Discussions about future work
	12.00 – 01.00		Break / Preparations / Report writing	Break / Preparations / Report writing
Wednesday, afternoon	01.00 – 03.30	DoS	Meeting with BC Component Leader and BC Experts	Discussions of needs for further support
	03.30 – 04.00		Preparations / Report writing	Preparations / Report writing
Thursday, morning	08.30 – 09.00	DoS	Preparations / Report writing	Preparations / Report writing
	09.00 – 12.00		Meeting with BC Component Leader and BC Experts	Final clarifications with BC Experts, preparation of report and presentation for BC Project Leader
	12.00 – 01.00		Debriefing with BC Project Leader	Conclusions and decisions and their consequences

Annex 3. People met

DoS:

Mr Moawiah Alzghoul, Director of National Accounts Directorate, and component leader

Annual national accounts

Amal Abu Afeefeh - Head of the Annual Accounts Division

Khairallah Almarzoug

Farhan Mohammad

Loay Alrawashdeh

Ali Zaitoun

Aycha Abou Shairah

Input-output division

Murad Bani-Hamad

Murad Omari

Quarterly accounts division

Walid Battah - Head of the Quarterly Accounts Division

Jaber Alfazza

Walaa Gharram