



## **EU Twinning Project IS12/ENP-APFI/o8**

Support to the Israeli Central Bureau of Statistics  
in the development of National Accounts, Education Statistics, Survey  
Methodology, ICBS Website and  
Coordination of Israel National Statistical System

### **Component A**

#### **Activity A.13**

#### **Compilation of air and waste accounts and their usage**

#### **Implemented by:**

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**Jerusalem**  
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## List of Abbreviations

AEA	Air Emission Accounts
CEPA	Classification of Environmental Protection Activities
BC	Beneficiary Country (Israel)
CBS	Central Bureau of Statistics (Israel)
EA	Environmental Accounting
EU	European Union
EW-MFA	Economy-wide material flow accounting
GHG	Greenhouse Gases
Moe	Ministry of Economy (Israel)
MoEP	Ministry of Environmental Protection (Israel)
NAMEA	National Accounting Matrix including Environmental Accounts
MS	Member State
PRTR	Pollutant Release and Transfer Register
SEEA	UN System of environmental-economic accounting
UN	United Nations

## 1 Summary

The A13 mission was focused on air emission accounts and waste accounts, and with respect to these subjects also general features and differences between NAMEA and SEEA framework were discussed. As an international recommendation and statistical standard the SEEA gives flexibility to its' implementation at national level, and clearly indicates that physical supply-use and input-output approaches can be focused on branches of economic activities and material groups and types that are of the most importance in Israel. It is recommended that the SEEA approach should be followed in environmental accounting.

Environmental expenditure accounts in Israel cover environmental domains (air, waste, waste water etc.) requested by the EU/OECD Joint Questionnaire and EU regulation on environmental accounts. Regular production of environmental expenditure accounts would support compilation and presentation of air emission accounts, waste accounts and water accounts in Israel.

In long term combination of environmental accounting on emissions to air, waste, water, energy and environmental expenditures and taxes would give a relatively comprehensive picture on interactions between environment and economy in Israel. Regular environmental accounts would be very useful especially for ministries on environment, economy, agriculture and national infrastructures. They would also offer a lot of statistical data and information for universities and research institutes that study and compile detailed analysis on environmental and economic interactions and effects of both physical and monetary production and consumption.

The framework of environmental accounting and definitions used are often not familiar to potential users of information provided by the accounts. Simplified presentation forms are needed in order to introduce the importance of environmental accounting and improve the usability of environmental accounts. Taking the branches of industry as a starting point in presenting the accounts (physical flows and monetary flows related to environmental matters) along with some environmental and economic indicators which use more familiar National accounts data could make the meaning of environmental accounting more clear to the users.

## 2 General comments

The MS Expert mission A.13 was the second activity within the Environmental Accounts sub-component of the general National Accounts component of the EU/Israel Twinning project on statistics. One more activity, a study visit to Statistics Finland (A.14) is planned within the sub-component.

The mission was implemented according to the agreed set of Terms of Reference and Agenda which are included in this report as Annex A13.1 and A13.2, respectively.

The MS Experts would like to thank the staff the Central Bureau of Statistics for their hospitality, fruitful discussions and all the very clear and structured information provided during the mission. Participation of so many experts from the ICBS, Ministry of the Environment Protection and Universities was very important for the mission and for successful proceeding of the action on environmental accounting.

The views and observations stated in this report are those of the MS Experts and do not necessarily correspond to the views of EU, Umweltbundesamt or Statistics Finland.

### 3 Assessment and results

In the first day of the mission the BC presented a summary from the A.12 activity and their work on air accounts. Allocating of emissions to branches of industry has proceeded, and it has become clearer:

- where the main data gaps are, which fuels and industries (groups of economic activity) that need more work in allocating the emissions, *and*
- where estimation and modeling approach might be adequate for the accounts.

Differences between NAMEA and SEEA framework were discussed, and no remarkable contradictions were found with respect to air emissions. The NAMEA type approach used in the ICBS is well applicable to be used in the SEEA framework as well. Presenting the air emission by industry in a way that is compatible with how economic data is presented in the Israel national accounts is one of the objects of both NAMEA and SEEA.

Manufacturing industries, at rather detailed industry level, and energy supply are well covered by air emission accounts, and they are also published in the report 'Waste and emission of pollutants in the manufacturing and electricity industries'. Allocating emissions to industries of agriculture, construction and households **remain** the main challenge to the development of air emission accounts in Israel. **Transport emissions are already calculated yearly by fuel and by type of transport.**

The second day was dedicated to waste statistics and accounts. The BC presented their proceeding in waste statistics and accounts, and the MS had a thorough presentation on experiences and practices of waste accounts in Austria.

The different data sources in Israel which are used for producing waste statistics and the remaining data gaps were discussed in detail.

Industrial Waste - comparison between PRTR-data and data from the survey on industrial waste generation:

*PRTR-reporting does not provide a full coverage as only approximately 430 enterprises have to report. The companies have to report their waste transfers on a more detailed level than required by PRTR-Regulation (at the level of waste types, not only aggregated as "total non-hazardous waste" and "total hazardous waste".) It seems that the European List of Waste is used for waste classification (to be confirmed).*

The PRTR data are reported at the site level, which makes it difficult to compare them to the ICBS data, which are collected at the business unit level.

The conclusion was that PRTR-data are very useful for plausibility checks but additional surveys have to be made to achieve a full coverage of (industrial) waste generation.

Waste from agriculture:

The BC informed the participants of the workshop that significant progress has been made with respect to waste from agriculture. A project was launched jointly by the Ministry of Environment and the Ministry of Agriculture. A policy how to handle agricultural waste has been set. Statistical methods for the estimation of certain waste types (e.g. manure3) have been developed.

Construction and demolition waste:

BC mentioned that large quantities of C&D waste are dumped in open areas and are not disposed of in landfills for C&D waste nor pre-treated in dedicated treatment facilities. Furthermore, C&D waste from the renovation of residential buildings are a problem because they are frequently disposed of together with municipal solid waste, thus distorting the municipal waste statistics.

The participants came to the conclusion that the underlying problem is waste management problem, and that the incomplete data on C&D waste only reflect the actual shortcomings. To the knowledge of the MS expert, there is no method for statistical estimation of the amounts of generated C&D waste, although there should be a correlation between economic indicators in the construction sector and the generation of C&D waste. The MS pointed out that in Austria a permit is needed for tearing down a building, and also for the recovery of C&D waste outside treatment facilities, and that the permits are a data source for C&D waste. It seems that in Israel such a permitting system is under construction and not yet fully implemented. Discussion on waste accounts continued in the third day.

Differences between NAMEA and SEEA frameworks with respect to waste accounts were also discussed. As waste can be both input and output in the economy, it is to some extent more complicated in supply-use tables than air emissions. The SEEA approach is a good starting point for waste account, because it allows focusing on flows most important from national point of view, and not necessarily on full supply-use balances by waste types and by branches of industry. Environmental expenditure accounts presented by the MC cover environmental domains (air, waste, waste water etc.) requested by the EU/OECD Joint Questionnaire and EU regulation on environmental accounts. Regular production of environmental expenditure accounts would support compilation and presentation of air emission accounts, waste accounts and water accounts in Israel.

The MS presented briefly a study made on physical input-output tables including also separate waste flows in Finland. This type of application of environmental accounting will be further discussed in the study visit to Finland in August. A general presentation framework for environmental accounts by branches of industry was drafted for future examination and improvement.

The MS explained that the specific NAMEA approach is no longer pursued for waste accounts. About 10 years ago, pilot studies had been commissioned by Eurostat to allow the MS to gain experience in producing NAMEA waste accounts. At that time, the methodology was still under discussion. In ESEA (European Strategy for Environmental Accounting) 2008 – 2013 NAMEA waste was identified as one of the “secondary priority areas”.

In the area of waste statistics, the focus of Eurostat and the MS is currently on the production of waste statistics according to the EU Waste Statistics Regulation (REGULATION (EC) No 2150/2002). The statistics on waste generation are to be compiled for all activities classified within the coverage of Section A to U of NACE Rev. 2. These Sections cover all economic activities. Waste generated by households and waste arising from recovery and/or disposal operations have to be reported too. Thus, the generation of waste is broken down to sources in such a way that the waste statistics can be combined with business statistics.

As a starting point, specific waste streams were discussed, such as hospital waste, used tires and car batteries. As to hospital waste, the BC noted that recently hospitals went through a process of accreditation regarding their hazardous waste and therefore, data should be available. With regard to used tires and car batteries, the MS noted a gap between the potential generation of these streams and the reported recycling amounts. These differences should be examined.

*Conclusions from the Austrian NAMEA-waste pilot studies were:*

The **total quantity** of (hazardous/non-hazardous) waste per economic category does not correlate very well with the economic variables. More detailed waste categories are necessary in order to find meaningful correlations.

Correlations could be identified between **quantities of hazardous wastes generated** and **values of gross value added** but not for all combinations of a certain waste category and economic categories.

The MS pointed out that the definitions of waste in SESA seems to differ from the definition of waste as laid down in EU waste legislation, especially with regard to wastes having an economic value. In the central framework for SESA (source: System of Environmental-Economic Accounting 2012 – Central Framework, UN New York, 2014) it is clarified that “in practice, ... statistics on solid waste will be based on legal and administrative lists of materials determined to be solid waste).”

The central framework for SESA provides an indicative list of types of solid waste, based on the EWC-Stat (substance oriented waste statistical nomenclature). The MS pointed out that this indicative waste list is useful for the presentation of statistical results but that a more specific waste list should be used for data collection.

The RTA, BC and MS discussed and drafted plans for the development of waste statistics/accounts and air emission accounts in Israel that could at applicable level follow the standards of the UN SESA and the EU environmental accounts. One dimension of the discussion was user needs and presentation of air emission accounts and waste accounts together with water accounts, environmental expenditure accounts and in the long term also with energy accounts and environmental taxes.

## 4 Conclusions and recommendations

### Application and breakdowns of the SEEA framework in environmental accounting

Both NAMEA and SEEA frameworks are useful starting points to environmental accounting. The SEEA is recommended by the United Nations and also applied by the European Union, and it is recommended that the SEEA approach should be followed. However, NAMEA and SEEA are not contradictory, and the most parts of the NAMEA are taken into account and included into the SEEA framework. As an international recommendation and statistical standard the SEEA gives flexibility to its implementation at national level, and clearly indicates that physical supply-use and input-output approaches can be focused on branches of economic activities and material groups and types that are of the most importance in Israel.

Environmental accounting in the EU is currently concentrating on emissions to air, economy-wide material flow accounts, physical energy accounts, environmental taxes, environmental expenditures and environmental goods and services sector. Water accounts are under development, and waste accounts is one possible module of environmental accounting in the future.

Israel has compiled water accounts and partial environmental expenditures accounts, and is developing air emission accounts and waste statistics that are compatible with national accounts. In long term combination of environmental accounting on emissions to air, waste, water, energy and environmental expenditures and taxes would give a relatively comprehensive picture on interactions between environment and economy in Israel. Regular environmental accounts would be very useful especially for ministries on environment, economy, agriculture and national infrastructures. They would also offer a lot of statistical data and information for universities and research institutes that study and compile detailed analysis on environmental and economic interactions and effects of both physical and monetary production and consumption. Although households are a separate sector in environmental accounts, allocation of physical flows to consumers needs to be done at more detailed level than in environmental accounts.

The basic breakdown for economic activities in environmental accounting should follow the breakdown used in National accounts. The starting point would be at highly aggregated level, e.g. as in the NACE Rev.2 classification of economic activities:

- A Agriculture, forestry and fishing
- B Mining and quarrying
- C Manufacturing
- D Electricity, gas, steam and air conditioning supply
- E Water supply and waste management
- F Construction
- H Transportation and storage
- G, I\_S Service activities, including public sector
- Households

Disaggregation is needed for C Manufacturing, but as well e.g. for H transportation in case of emissions to air, taxes and energy accounts. Of all main categories from A to G; I\_S, more detailed data could be presented by recording the most important branches of industry as 'of which' from the main categories. Disaggregation of the main categories would be a compromise between availability of basic data for environmental accounting, resources available for environmental accounting, reporting practices of National accounts, and needs and views of the main users such as the MoEP, MoE and research community. As far as possible, all data collected for the PRTR



register should be allocated to branches of industry at rather detailed level. A draft excel -table that could be used in planning the possible breakdowns for environmental accounting is presented in the annex 13.8.

The framework of environmental accounting and definitions used are often not familiar to potential users of information provided by the accounts. Simplified presentation forms are needed in order to introduce the importance of environmental accounting and improve the usability of environmental accounts. Taking the branches of industry as a starting point in presenting the accounts (physical flows and monetary flows related to environmental matters) along with some environmental and economic indicators which use more familiar National accounts data could make the meaning of environmental accounting more clear to the users.

### **Air emissions**

In allocating air emissions to branches of industry the long term goal would be, that accounts for air emissions, environmental expenditures (especially on air and climate protection) and environmental taxes could be presented at the same level of disaggregation. These accounts could then further be combined to economic data provided by the national accounts. Due to the high economic and environmental importance of greenhouse gases, accounts for these gases should be compiled first, and then apply the methodology developed and experience gained to other air emissions.

Development of the PRTR register, the ICBS survey and the ICBS monetary input-output tables are in a key position to further development of air emission accounts. Therefore a close and regular co-operation is needed between organizations and units involved. A working group consisting of the ICBS, MoEP and MoE could concentrate on co-operation and co-ordination on data sources and methodologies, clarification of terminology and definitions, future structuring of the accounts and planning of regular reporting from both MoEP's PRTR register and ICBS air emission accounts. Other current and potential data providers and users could be informed regularly, and invited to closer co-operation when needed.

Analyzing the current and future PRTR data is still among the first priorities. Other data sources, such as the coming new administrative data from agriculture, vehicle register and data on vehicle taxes and voluntary mechanism for companies to report greenhouse gases needs to be examined as well.

In the long run development of physical supply-use tables for energy would support the air emission accounts and also the compilation of monetary input-output tables. Energy flows are closely related to environmental taxation and environmental expenditures due to air emission from energy supply and use.

### **Waste statistics and accounts**

From the SEEA point of view, statistics on generation of waste by economic activities and by the main types of waste cover the most of supply -side from the supply-use table for waste. Data on waste generation can be combined to other environmental and economic data allocated to branches of industry and presented by branches of industry.

In allocating waste generation to branches of industry the long term goal would be, that accounts for waste, environmental expenditures (especially on waste management) and environmental taxes could be presented at the same level of disaggregation. A starting point for disaggregation of waste types could be adapted from the SEEA -type of disaggregation to seven types of waste, and use the 'of which' categories in the national breakdown to more detailed level when needed. In the long run it is recommended, that disaggregation of waste types used in the European waste statistics regulation would be adapted.

Balancing the generation and treatment (supply-use) of waste faces many difficulties in practical work. These difficulties are caused by e.g. different pre-treatment activities and double counting caused by them, changes in water content of waste during treatment, and different definition of waste in foreign trade statistics than in waste statistics. Therefore it is not recommended to compile full balances between generation and treatment of waste by economic activity and by waste type. Balances can be calculated at aggregated level to ensure that all necessary information on both generation and treatment of waste is available and included into waste statistics compilation system.

### **Study visit to Finland in 25-27 August**

The suggested list of topics for the study visit consists of:

- Air emission accounts
- Energy accounts
- Session on physical input-output tables
- Environmental expenditures
- Environmental taxes
- Water accounts in Israel and update of situation in the Twinning sub-component environmental accounting

## 5 Plan for development of the environmental accounts

### *Air emissions*

#### **Short-term (1 -2 years)**

Establishing Working Group with MoEP, MoE and other most important stakeholders to focus on  
available data sources  
definitions and terminology  
future structure and presentation of the accounts  
Calculation of emissions of greenhouse gases by branches of industry  
Definition of applicable level of disaggregation of economic activities (branches of industry)  
Co-ordination of data sources and methodologies, including monetary input-output tables

#### **Long-term (3-5 years): possible goals**

Other air emissions by branches of industry  
Physical supply-use tables for energy to support air emission accounts and compilation of  
Monetary input-output tables  
Plans for compilation of statistics on environmental taxes by branch of industry

### *Waste accounts*

#### **Short-term (2 -3 years)**

Establishing Working Group with MoEP, MoE and other most important stakeholders to focus on  
available data sources  
definitions and terminology  
future structure and presentation of the accounts  
Framework decided  
Waste types according to SEEA (7 types plus 'of which' categories, which means that a more detailed breakdown of waste types can be made for wastes of high concern, e.g. "non-metallic recyclables, of which glass, paper, ...")  
National application of the breakdown of the economic activities as used in the EU waste statistics regulation

Identification of data gaps on economic activities and on waste streams by the main waste types  
Clarification of terminology on mixed waste  
Balancing generation and treatment of waste at applicable aggregated level

#### **Long-term (4-5 years): possible goals**

Waste categories according to EU waste statistics regulation, if necessary national application to be developed.  
Breakdown of waste treatment by branches of industry at applicable aggregated level.

## 6 Road map and time plan

- Before August - analysis of PRTR data: comparison and overlap with ICBS data
- Internal ICBS discussions of the level of short and long term ambitions, and considerations regarding possible additional data collection.
- Internal ICBS discussions on how to develop compilation of monetary input-output tables together with the development of air emission accounts and physical supply-use tables for energy
- August (A.14): drafting of development plan for waste and air
- August (A.14): discussions of final draft of development plan

## Annex A13.1 Terms of Reference

**Component A: National Accounts**

**Sub-component: Environmental Accounts**

**Activity A.13: Compilation of air and waste accounts and their usage**

<b>Mandatory result</b>	<b>Benchmark</b>
Definition of the structure of waste and air environmental accounts	Structure of waste and air environmental accounts defined by 6 <sup>th</sup> project quarter

### **Subject / purpose of activity A.13**

A.13 is a follow-up to the A.12 activity. The subjects of the A.13 activity are

- Workshop on the compilation of waste and air accounts and their usage. Presentation of input-output tables and how they are compiled.
- Comparison of NAMEA and SEEA.
- Discussion on how ICBS can best move towards using SEEA.
- Consequences of the transition.

### **Expected output from activity A.13**

The expected output from the activity is a report with recommendations on

- Work to shift from NAMEA to SEEA
- Opportunities for the use of air and waste accounts

## Annex A13.2 Programme: 15-17 May 2014

Date	Place	Time	Event
Tue 13/5	CBS	09:00	Acquaintance and introduction to air accounts
		09:15	Summary from the A.12 activity and work related to air accounts undertaken by ICBS
		09:45	The users' data needs from the air accounts with respect to analytical purposes etc.
		10:30	Coffee break
		11:00	NAMEA vs. SEEA – differences between the approaches
		11:30	Structure for the Israeli air accounts –what structure fulfils the user's needs best?
		12:30	Lunch break
		13:30	Work plan for the air accounts – follow-up on user needs: how to get there?
		15:30	End of day 1
Wed 14/5	CBS	09:00	Acquaintance and introduction to waste accounts
		09:15	Summary from the A.12 activity and work related to waste accounts undertaken by ICBS
		09:45	The users' data needs from the waste accounts with respect to analytical purposes etc.
		10:30	Coffee break
		11:00	The Austrian set-up for waste accounts – experiences and practices
		12:30	Lunch break
		13:30	NAMEA vs. SEEA – differences between the approaches
		14:00	Structure for the Israeli waste accounts - what structure fulfils the user's needs best?
		15:00	Work plan for the waste accounts – follow-up on user needs: how to get there?
		15:30	End of Day 2
Thu 15/5	CBS	09:00	Work plan for the waste accounts (continued)
		10:30	Coffee break
		11:00	Physical input-output tables & Monetary accounts
		12:00	Preliminary recommendations: NAMEA and SEEA, waste and air accounts
		12:30	Lunch break
		13:30	Report writing and preparing for debriefing
		14:45	Debriefing
		15:30	End of meeting

## **Annex A13.3 Persons met**

### ICBS:

Moshe Yanai, Head of Environment, Energy and Agricultural Statistics Sector, component leader

Tali Tal, Head of Infrastructures Department

Amit Yagur-Kroll, Sustainable Development expert

Yaniv Sharabi, Environmental Expenditure expert

Oren Ben Sidon, Agriculture and Environment Indicators expert

Oz Karpel, Water Accounts expert

Roe Abudi, Greenhouse Gas Emissions and Air Accounts expert

Tomer Cohen, Waste and recycling expert

Galina Braverman, Head of Government Accounts Sector, Macro-Economics Department

Malka Levinger, Government Accounts Sector, Macro-Economics Department

Haydee Faur, Head of Input Output Sector, Business and Economy Department

Sarel Ben Tsvi, Input Output Sector, Business and Economy Department

Nirit Shachar, Input Output Sector, Business and Economy Department

### Ministry of Environmental Protection

Uri Shilhav, PRTR Co-ordinator

Ohad Carny, Director of Business Sustainability

Eldad Tzadok, Economics Department

Itay Yihya, Economics Department

### Ministry of Economy

Tzruya Chebach, Consultant, Meidata

### Ben Gurion University

Zeev Stossel, PhD Student

### Tel Aviv University

Noa Stern, PhD

## **Annex A13.4 List of materials provided to the ICBS**

Eurostat Manuals and guidelines. Environmental taxes. A statistical guide. 2013 edition

Environmental taxes. Eurostat Questionnaire 2013

## **Annex A13.5 Draft planning table for coverage and presentation of environmental accounts**