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**SEEA AND ENVIRONMENTAL PROTECTION EXPENDITURE
CASE STUDIES: SLOVANIA AND SYRIA**

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Introduction

Environmental protection is nowadays being integrated into all policy fields for ensuring the sustainable development that refers at once to economic, social and environmental needs (three pillars of sustainable development).

We can repeat the accepted formulation of Bruntland Commission stated in World Commission on Environment and Development in 1987:

Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without comprising the ability of future generations to meet their own needs.

All activities, no matter if they are from sectors of economy, government agencies or local authorities, companies involved in industrial or other businesses activities, businesses providing environmental services (such as collection and treatment of waste, or environmental consultancy), and households as consumers, inevitably somehow affect the environment.

From governmental side is the awareness of environmental protection indicated in adopting regulatory measures (where also taxes or incentives directly linked to environmental pollution are taken into account). The production of goods or services can also have a great impact to the environment. In this sector the protection of environment is on the voluntary base (if not any legal bases are adopted) either based on the awareness of companies or on financial abilities of companies for performing environmental protection. In this phase the production under environmental standards is not negligible. Environmental protection also creates complete new markets for environmental goods and services.

As mentioned in SNA 93 chapter XXI monetary and physics statistics can be combined for highlighting and verifying the link between environment and economy consistent with national accounts. The SNA encourage developing satellite accounts for studying in depth environmental related activities and products. The SEEA is a satellite system of SNA that comprises four categories of accounts. **The first category considers purely physical data relating to flows of materials and energy** (chapter 3 and 4 of handbook). **The second category of accounts follows the elements relevant to the good management of the environment with the environment-related transactions.** So the accounts included in this category are the ones that are made by businesses, government and household for protecting the environment (chapter 5 and 6 in handbook). **The third category comprises accounts for environmental assets measured in physical and monetary terms.** (chapter 7 of handbook). **The last SEEA accounts category considers three sorts of adjustment: the one related to depletion, another one so-called defensive expenditure and the ones relating to degradation.** (chapter 9 and 10 of manual).

Taking into the closer consideration accounting for economic activities and products related to environment and accounting for other environmentally related transactions we must be focused on chapters 5 and 6. Monetary accounting for these two chapters is including detailed in identification of environmental protection expenditure and other economic instruments for encouraging responsible resource management as: taxes, licenses etc.

The environmental protection accounts are purposed to measure environmental protection and management activities, production of goods and services for environmental protection. All of

the environmental related products and services are already in the main SNA, we have only to disaggregate them to specifically environment-related economic accounts.

Until SEEA only two systems existed at an international level for the recording of environmental protection expenditure: OECD's Environmental Protection Expenditure and Revenues (EPER) system of collection and Eurostat's SERIEE system.

The EPER system is used by both OECD and Eurostat to collect data on environmental protection expenditure and revenues mainly in two-yearly JQ reporting.

As stated in SERIEE the environmental protection activities are *all actions and activities that are aimed at the prevention, reduction and elimination of pollution as well as any other degradation of the environment.*

SERIEE (published in 1994 and updated in 2002) as a European System for the Collection of Economic Information on the Environment, also followed the recommendations of Chapter XXI of the 1993 System of National Accounts. The primary purpose of the 1994 SERIEE manual was to set up the conceptual framework for a monetary description of environmental-protection activities. The SERIEE manual also included the first version of the Classification of Environmental Protection Activities and Expenditures (CEPA). CEPA is UN adopted classification used for classifying activities, products, actual outlays and other transactions related to environmental protection.

Environmental protection expenditure

Environmental protection expenditure are the response on the pressure and state of the environment, they show the preparedness for preserving the quality of environment with inclusion of avoiding, preventing, removing and reducing the harmful impacts to the environment.

Since 1996, data have been collected in association with the two-yearly data collection as a joint OECD/Eurostat questionnaire, which was later on also reviewed in detail and revised.

After several revisions, the Joint OECD/Eurostat Questionnaire on Environmental Protection Expenditure and Revenues (JQ) is now based on an accounting structure rather close to that of the EPEA. For the reporting of environmental protection expenditure the Joint questionnaire adopted the CEPA as the basic classification of environmental domains. The definition of environmental protection expenditure is the same in the JQ and the EPEA. There is also similar classification of institutional sectors in both of them.

The EPEA consists of a whole system of tables of supply, use and financing of environmental services and expenditures, the JQ presents important elements of environmental expenditures in a less complex way.

The objective is that the conversion guidelines among JQ and SEEA should:

- Facilitate reporting of environmental expenditure data in the Joint OECD/Eurostat Questionnaire,
- Increase consistency between EPEA results and Joint Questionnaire data,

- Serve as a basis for discussion on how to implement the European Strategy for Environmental Accounting.

ENVIRONMENTAL EXPENDITURE INDUSTRY DATA COLLECTION

A great impact on the environment is a direct result of the production of goods or services. The legal framework for data collection on environment expenditure is Council Regulation No. 58/97 on Structural Business Statistics, first adopted in December 1996 and later on amended several times. The Regulation provides a tool for regular collection of data, mainly focused on the variables and sectors that are subject to obligatory reporting under the Structural Business Statistics Regulation – i.e. investments and current expenditure on environmental protection by industry (NACE 10-41 – mining and quarrying, manufacturing, energy and water supply).

Industry data collection handbook was issued on 2005.

Some definitions on environmental protection expenditure:

Environmental protection expenditure is the sum of capital and current expenditure on environmental protection activities.

Environmental protection is an activity (involving the use of equipment, labour, manufacturing techniques and practices, information networks or products) where the main purpose is to collect, treat, reduce, prevent or eliminate pollutants and pollution or any other degradation of the environment resulting from the activity of the business.

Environmental protection expenditure may relate to activities that generate marketable by-products or results in savings, or are financed by subsidies or capital allowances. In such cases, environmental protection expenditure should be reported gross of any such cost offsets.

Environmental protection investment

Total investment in environmental protection is the sum of investment in **pollution treatment** and in **pollution prevention**, distinguished by the nature and function of the activity.

Investments can be in a number of things: machinery, equipment, buildings, land etc.

Pollution treatment investment (end-of-pipe investment) is defined as capital expenditure on methods, technologies, processes or equipment designed for collecting and removing pollution and pollutants (e.g. air emissions, effluents or solid waste) after their creation, preventing the spread and measuring the level of the pollution, and treating and disposing of pollutants generated by the operating activity of the business.

I. Pollution treatment investments include distinct, identifiable components that are supplementing existing equipment, which are implemented at the end of, or completely outside, the production line ("end-of-pipe" equipment).

II. Pollution treatment also includes investment in equipment (e.g. filters or separate cleaning stages) that concentrate or extract pollutants in the production line, if the removal of these facilities would not generally affect the functioning of the production line.

Pollution prevention investment (integrated technologies) is defined as capital expenditure on new, or modification of existing, methods, technologies, processes, equipment (or parts thereof) designed to prevent or reduce the amount of pollution created at the source, thereby reducing the environmental impacts associated with the release of pollutants and/or with polluting activities.

Current expenditure on environmental protection

Current expenditure on environmental protection includes labour costs, payments of rents, use of energy and other material goods and purchases of services, where the main purpose is to prevent, reduce, treat or eliminate pollutants and pollution or any other degradation of the environment resulting from the operating activity of the business.

- Current expenditure from own internal resources is called “**in-house**” or “**internal**” current expenditure: for operation and maintenance of environmental equipment (use of material, energy), personnel costs (only for the personnel participating in environment protection), for general environmental management, information, education and other
- **External current expenditure:** fees for environmental protection services (payments for waste water, waste etc.), monitoring, other current expenditures (e.g. obtaining environmental standards).

Incomes from environmental protection activities

- Incomes from providing environmental protection services
- The revenues from sold by-products that are the result of the environmental protection activities
- The amount of reduction of costs because of the internal use of by-products that are the result of environmental protection activities

National Statistical Offices throughout the world face the need to drastically reduce the response burden as one of their major strategic challenges. Minimising the response burden is not only in the interest of respondents. A successful reduction programme may very well reward the statistician too: data quality may be higher, the response will be quicker and response rates will rise, while collection costs fall.

Part I- Focusing on EPER in industry – Slovenia

In the Republic of Slovenia the public awareness for the environmental protection is very great. For better understanding and presenting the environmental problems some special economic indices are required. Environmental protection expenditure are the response on the pressure and state of the environment, they show the preparedness for preserving the quality of environment whereas the avoiding, preventing, removing and reducing the harmful impacts to the environment are included.

The users of the statistical data on environmental expenditure are mainly interested in the sum of money and information on the structure of expenditure by environmental domain, by economic purpose (current, investment expenditure) and by economic sectors (industry, agriculture, etc.).

For the complete overview on the pollution abatement and control expenditure we need data from different sources. **Data from the Statistical Office of the Republic of Slovenia** is very useful concerning the environmental expenditures from business sector. **Data from Ministry of the Finance** are more reliable for the public sector under the Classification of Function of Government, section 05 Environmental Protection and with data according to economic classification and accounting rules from the consolidated balance. For following up data on some of the environment related taxations we use also **data from Environmental Agency of the Republic of Slovenia, Tax Administration of the Republic of Slovenia and Custom administration of the Republic of Slovenia.**

Main users of data are several institutions, researchers and decision-makers, for making environment-related decisions. Eurostat gather also data every year for SBS purposes and every second year with OECD/Eurostat joint questionnaire.

History of data collection on the Statistical Office of the Republic of Slovenia

Data on environmental protection expenditure has been collected in Slovenia more than 15 years with special table that was for few years a part of the Annual Report on Gross Fixed Capital Formation (questionnaire INV-01). International obligation for reporting data on environmental expenditure (Joint questionnaire every two years) showed that gathered data does not satisfy the questionnaire demands. Therefore we have decided to improve our data collection first in industry with carrying out a new independent survey on environmental expenditures in 2002. In the new questionnaire for 2001 we were focused mainly on investment data (end of pipe, integrated) and data on current expenditure (internal and external current expenditures). With the same questionnaire we hoped to get also some other data on environment-related expenditures as environmental taxes, subsidies and transfers. The response rate on these questions was very low therefore data was not reliable. In the following years we have decided to replace questions on environment related expenditures with 3 questions on revenues from environmental protection related activities.

From 2003 we have carried out two regular surveys on environmental expenditures, OKI and OKI - S. The questionnaires are harmonized with the demands from Eurostat.

Regular survey on environmental expenditure, OKI, OKI-S questionnaires

Purpose:

With the annual survey **OKI-S** we collect data on environmental investments, their sources of financing, current expenditure for the environmental protection and incomes from the environmental protection as incomes from the providing environmental protection activities, revenues from sold by-products that are the result of the environmental protection activities, the amount of reduction of costs because of internal use of by-products that are the result of environmental protection activities. Data are collected by environmental domain.

Regular yearly data collection **OKI** is focused mainly on better quality data from fields of activity Mining and quarrying, Manufacturing and Electricity, gas and water supply. Because of the existing time series, we have decided to collect data also from the other fields of activity and are somehow reliable, except for the public sector.

Coverage:

Data are collected directly from enterprises and organisations.

The observing units for OKI survey are selected with the sample (approximately 2000 unit for OKI survey) to which the sample frame is the general survey on gross investment where the units with more than 20 employees are observed. The units for the sample are for some fields of activity chosen also according to the threshold, which was chosen with the presumption that the share of investment of the small units means a small share in the total. Usually about 10 – 20% of reporting units give the main contribution to the environmental expenditure.

With the survey **OKI – S** we collect data from the enterprises that are performing environmental protection activities (fields of activity 37 - Recycling, 41 - Collection, purification etc. of water and 90 - Refuse disposal, sanitation, etc. under NACE Rev. I) with 10 or more employees.

Method of data collection:

Data on environmental expenditure are collected with OKI and OKI-S questionnaires for fulfilling legal requirement for the Statistical Office of the Republic of Slovenia as collector and disseminator of data under the National Statistics Act (OJ RS, No. 45/95 and 9/01) and Annual Programme of Statistical Surveys for (OJ RS, No. 114/08).

Questionnaires are sent by mail.

In the first page of the questionnaire we have some general remarks on the purpose of the survey, legal base, about methodological explanations, data accessibility and contact persons for the further explanations. In the first page there are also three control questions for the further three tables like: did you have environmental investment in the previous year, etc.

In the inner side of the questionnaire there are two tables.

The **first** one is created so, that the reported units can answer about the **end-of-pipe environmental investments** and **integrated investments**, both by environmental domain and by the financial source (from own financial assets, from joint assets, from financial credits and leasing, from assets of funds, without compensation of fixed assets).

The **second** table is aimed for **current expenditure for environmental protection** and is divided into internal current expenditure and external current expenditure. **Internal current expenditure** is earmarked for the maintaining of the environmental protection facilities, for personnel costs and other internal current expenditure. **External current expenditure** is earmarked for the research and development, payments to the third parties for environmental protection services, monitoring and other current expenditures.

On last page of the questionnaire there is a table for environment-related revenues such as incomes from providing environmental protection services, revenues from sold by-products that are the result of the environmental protection activities, the amount of the reduction costs

because of the internal use of by-products that are the result of the environmental protection activities.

Data are collected according to the environmental domain under the Classification of the Environmental Protection Activities: protection of air and climate, wastewater management, waste management, protection and remediation of earth, underground and surface waters, noise and vibrations abatement, protection of biodiversity and landscape, research and development and other environmental domains where protection against radiation is included.

As a help to the reporting units we prepared also the methodological explanations that were last published in 2004 and are from then acceptable on the SORS web page.

Data processing

Data are entered and controlled in Blaise programme and after grossing up tabulating. For non-response we performed recalculation to the total population with the ratio estimator, using the value added tax database of the Tax Administration, or the number of employees. For the recalculation of the payments for the environmental protection services, another weight, calculated according to the estimation that all active units have such expenses, was used. Recalculation was made under the same procedure as for the first weight

Dissemination:

First release, SI-STAT data base, Statistical Yearbook, reporting for SBS, OECD/Eurostat JQ every second year.

Administrative sources

The use of the administrative sources is especially relevant in the public sector.

For presenting the environmental expenditure in public sector we mainly use administrative sources from Ministry of Finance, Environmental agency of the Republic of Slovenia, Tax Administration of the Republic of Slovenia and Custom Administration of the Republic of Slovenia.

Ministry of Finance is the main administrative source, with data according to economic classification and accounting rules from the consolidated balance and data on the state budget according to the Classification of function of government.

Economic classification and accounting rules from the consolidated balance are in line with the IMF methodology (Government Finance Statistics Manual, GFS - 1986). Data according to the economic classification are from the consolidated balance of public financing in Slovenia, which is a statistical record that provides basic insight into flows between the general government sector units and other units of the economy. It systematically summarises transactions which are the result of implementing the system of financing general government functions through the central government budget, municipal budgets and the two compulsory social security funds - the Institute for Pension and Disability Insurance (IPDI) and the Health Insurance Institute of Slovenia (HIIS) ("ordinary" public financing).

For the environmental purposes we mainly follow the account on the balance of revenues and expenditure. Following the revenues and expenses we must be very careful to avoid double counting. Environment taxations that are expenses for the units of the economy are on the other side revenue for the budget (either state or municipal).

Data that we follow according to the COFOG are in the chapter 5 meant for the environment. In this chapter expenditures are shown in the accordance to the Classification of the Environmental Protection Activities.

Data dissemination

Data from the surveys are published yearly in the Statistical Yearbook and First Release. Every year we send data on three variables also for SBS purposes to Eurostat and every second year for OECD/ Eurostat JQ.

The estimation of environmental expenditures in the public sector is published every second year.

In the Institute of Macroeconomic Analyses and Development they calculate the estimation of national aggregation on environmental expenditure on the basis of previous and partly data (incomes, households, transfers) and data from Statistical Office of the Republic of Slovenia and Ministry of Finance. This indicator is used in regular monitoring for the documents concerning development planning and is the part of the Strategy of Economic Development of Slovenia.

Part II- SOME RESULTS OF SYRIA MISSION

Participants from the Central Bureau of Statistics (CBS) and Ministry of State for Environment were present during the discussions.

Great awareness and a growing demand from policy-makers in Syrian Arab Republic (Syria) for evaluation of the state of environment forced CBS to take the initiative in gathering good quality environmental data. They decided to join their data collection efforts with those of the Ministry for Environment and other ministries for the interests they have in common.

Some statistical data on the state of the environment were gathered in previous years in the CBS as in the other governmental institutions. All the activities in data collection in Syria must be in the accordance with CBS. Therefore data from other ministries can be used for CBS purposes, too. CBS with other institutional partners involved in environment has expanded the environment surveys in 2007 in households, municipalities, hospital and industry. These were mainly the surveys on water and waste and sometimes on air emissions and noise.

After the workshops organised by MEDSTAT they have prepared the first version on SEEA Water and environment protection expenditure accounts. In the gathered data no investment for environmental protection from industries are available. Also no differentiation between treatment and prevention is found.

The main objective of the mission was to support the production of tables on public expenditures with finding the possibility for gathering data from other sectors (industries, specialized producers, households). The mission was focused on reviewing of the existing tables, reviewing of other sources of information as State budget documents, Households survey and Municipality survey (with the stress on the financial side of environmental protection). A lot of discussion was focused on the possibilities for getting data on environmental protection from industries and households.

Different ministries are providing data to CBS, mainly data on land use, water use and water discharge, waste (mainly from municipalities), air pollution and biodiversity. CBS surveys on household waste survey, municipal waste survey and medical waste survey were discussed and we tried to figure out how to import the questions on EPE into the existing questionnaires. Some proposals to improve data gathering were discussed in the meantime. The main discussion was on the proposed new amendment to the waste survey, where data on environmental expenditure could be gathered. There was a strong opinion in favour of the creation of a completely new independent survey on environmental expenditure (detailed pollution prevention and pollution treatment investment and current expenditure broken down by the different environmental domains).

The pollution abater principle and pollution financing principle were presented to the participants on the basis of the Eurostat/OECD questionnaire. The present situation of environmental data collection in Slovenia was explained. The presentation was focused on industry environmental protection expenditure data collection. Samples of questionnaires on waste data collection and expenditure data collection were handed over.

According to the proposed and ongoing surveys:

Surveys on waste

A strong suggestion was made to harmonise with the existing European List of waste. A more detailed view was suggested. It would be good to also survey state-owned industrial enterprises. The recalculation of waste towards a unified measuring unit and coefficients for this recalculation were also discussed. Starting with a pilot project and then explaining to the statistical units the great importance of the results could be a good beginning for setting up the regular survey on industrial waste. The volume of waste and the way of treatment is not allocated. Crossing the type of waste and the treatment mode was suggested.

The table on environmental investments and current expenditures by environmental domain was suggested as an amendment to the new waste survey design.

Surveys about waste from households, hospitals and municipalities, organised by CBS, still do not use the List of Waste (LoW). There is still no data on waste generated and waste collected from households.

Municipality and Household survey

Data from municipality and household survey will be of a great interest for water accounts. In all surveys where wastewater and waste are observed, according either to discharge/landfill or to the treatment(s), financial data have to be collected. Very good amendments were also

brought to the Municipality survey and to the Household survey as well, regarding household expenses on waste disposal, sewerage system and water use. Explore the possibility to use administrative data if available.

In the waste surveys it is advised to follow the European List of waste.

EPEA

With the proposed combined questionnaire on waste and expenditure, or with an independent questionnaire on expenditure combined with other data from administrative sources, more data on the financing table of the EPEA could be available.

Data on air pollution

More data will be available with the operating of new monitoring stations.

Recommendations

Industry environment protection expenditure independent survey is advised

- strong need for detailed data on EPE from industry
- data must be collected according to Industry Data Collection Manual – considering investments (pollution prevention, pollution treatment)) and (in house and paid to the others) current expenditure.

Environmental accounts

According to the diverse data sources CBS should work further specially on SEEAW standard tables and physical supply and use tables and air emission accounts.

Improvements in data collection and more data from administrative sources can be a help for further work on EPEA.

CBS have to put effort in publishing data gathered either by own surveys or from the other administrative sources.

In last few years Syria has made a great improvement in data collection. Their preparedness for following the instructions for improving surveys and harmonizing classifications is great.

Syria's representatives have active participated to the few workshops on environmental protection expenditures statistics and accounts (Copenhagen, Nice, Cyprus).

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