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Definitions of environmental protection expenditure variables used for industry data collection – Issues for discussion

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"Environmental Protection Expenditure – Industry Data Collection"

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1 WHAT DO WE WANT TO ACHIEVE?

The overall objective of the work on reviewing definitions is to secure good quality and harmonised data on industry environmental protection expenditure. The main focus should be on the industries covered in the SBS regulation: i.e. Mining, Manufacturing, Energy and Water supply (NACE 10-41 excluding 37), but the output should be valid also for other parts of the Business sector although not specifically addressed. The special features of the enterprises that specialise in providing environmental protection services such as waste collection and treatment or sewage treatment (mainly in NACE 90) are not addressed specifically in this review process.

Eurostat has proposed several actions to achieve this overall objective. They include:

- A virtual working group co-ordinated by CREA Studio Associato
- A Task Force on industry data collection
- A possible workshop on industry data collection
- An industry data collection guidebook

The expected output of the work ranges from general definitions of key variables to concrete lists of examples and other measures which could make it easier for the respondents. There are different identified uses of this output, each with different requirements.

One output of the work should be general definitions of the variables end-of-pipe and integrated investments and total current expenditure on environmental protection which could be included in the Commission Regulations which will follow the amendment of the SBS regulation. The existing definition of end-of-pipe investments, included in the COMMISSION REGULATION (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics, could be used as an example of the level of detail expected in this regard. An excerpt from this Commission Regulation is included in Annex 2.

These general definitions need to be fairly short and general. They are mainly directed towards the Statistical Services in the Member States, and should form a common basis for future data collection in this field.

Although these general definitions should be followed, the countries might choose to adapt these and include more detailed guidelines and examples in their questionnaires to enterprises. The level of detail in this regard will vary considerably and will e.g. depend on the choice between using a specific expenditure survey or include questions in the regular structural business survey. In order to secure harmonisation, a set of more specific guidelines and recommendations should be developed which could be included in an Annex to the Commission Regulation (not part of the legal text). This could include e.g. the recommended treatment of different sub-categories of integrated investments and profitable measures.

Finally, the proposed Data collection guidebook is intended to serve as a benchmark or point of reference for the Statistical Institutes when starting up or conducting surveys. It would be based on the experience from countries with regular surveys in this field, and the different pilot studies made linked to the SBS regulation. This guidebook would provide more details on the definitions and guidelines including in particular lists of examples, questionnaire design, possible measures to reduce response burden and secure good quality data, links to business accounting, the joint questionnaire and expenditure accounts etc. It should take into account differences in data collection in countries (e.g. specific questionnaire or addendum to SBS questionnaire).

2 WHAT IS THE ROLE OF THE TASK FORCE?

During the first six months of the review process (January-June 2001), the focus of the work will be mainly on general definitions and guidelines. Much of the work will be conducted within the Virtual working group which is co-ordinated by CREA.

At this stage, the objective of the Task Force is to provide an opportunity for a physical meeting where proposals for definitions and guidelines and some outstanding definitional issues can be discussed in detail.

The objective is that a document with Definitions and Guidelines which is agreed upon by the members of the Virtual working group will be available in June 2001.

Proposal for definitions and guidelines for the Commission Regulations following the proposal for amendment of the SBS regulation will then be a topic for discussion with all Member States. It is foreseen that a proposal should be submitted to an SPC meeting for decision at the end of 2001 or early 2002.

More detailed work on lists of examples, questionnaire design, measures to make it easier for respondents, and other issues related to specific surveys of industry expenditure will mainly be done in autumn 2001 and spring 2002. This work should take into account pilot studies and other work currently being done in Member States related to the implementation of the SBS regulation, partly financed by the EC. Final reports from countries are expected to be available between July 2001 and June 2002. Many of these will contain detailed lists of examples and guidelines often elaborated in co-operation with enterprises.

The role of the Task Force in this more detailed phase of the work is

- to discuss and develop further the general definitions and guidelines, including lists of examples and treatment of e.g. energy production and water supply enterprises (NACE 40-41).
- to discuss and give recommendations on other aspects that could secure good quality data collection such as questionnaire design, measures to limit response burden, links to company accounts, statistical methods etc.
- to serve as a steering group for the work on the Data collection guidebook.

It is expected that the Task Force on industry data collection has fulfilled its objective after the publication of the Data collection guidebook.

3 SPECIFIC ISSUES FOR DISCUSSION

The objective of this paper is to describe in more detail different choices as regards definitions, guidelines and treatment of specific issues. These are sorted into three broad categories (sections): general definition, capital expenditure and current expenditure. Each section starts with a general text outlining some of the issues for discussion and has several specific questions at the end.

The definitions and guidelines proposed by CREA in "Draft guidelines for the collection of environmental expenditures in the industry sector (first version)" is a starting point for the present paper, as are the different comments made within the virtual working group. The objective of this paper is to complement those proposals with a more detailed description of the use of the existing definitions, to set out possible alternative methods, to provide background material for the proposals which are marked with "no agreement" and to identify some additional issues for discussion.

Each section below is also a separate point on the agenda for the task force meeting. The idea is to have first a general discussion based on the text presented here, then a discussion on each of the questions listed at the end of each section, and finally a discussion and possible recommendation on specific definitions and guidelines.

3.1 GENERAL DEFINITION

3.1.1 Purpose or effect criterion?

There are different ways of defining and delimiting the area of environmental protection expenditure statistics. The method currently chosen is basically a classification by purpose.

There are several other classifications which are based on the purpose criteria e.g. the classification of government expenditure into different areas in COFOG, or a similar classification of Household expenditure in COICOP, both used in a national accounts context.

This means that when you survey enterprises, you would like them to think of what they have done the last year (*actions, activities*) to reduce their pressure on the environment, and report all related *expenditures* with such an environmental purpose.

In principle, it would be possible to use the environmental effect of the actions as the main criteria. However, you could argue that more or less all actions taken by an enterprise has some (often positive) effect on the environment. New machinery and equipment e.g. are often more efficient in many ways, including their impact on the environment.

When the purpose criterion is used instead of the environmental effect the number of actions and activities is limited so that:

- Actions/activities/expenditures where there is an environmental effect but no purpose are excluded: i.e. what the company does only as part of its normal commercial activity which as a side-effect happens to be better from an environmental point of view.

- Actions/activities/expenditures where there is a purpose but no proven effect are included: i.e. there is no need to actually evaluate the effect of a measure. If the intention is to reduce pollution, it is regarded as environmental protection. This includes cases where the intentions are "good" but not fulfilled for some reason, and could also include cases where the environmental effect is in some way disputed (e.g. tests of entirely new cleaning measures).
- Actions/activities which do not directly involve expenditures are not covered at all such as changes in behaviour patterns (some good housekeeping measures etc).

The different criteria are linked with different policy questions and uses.

The purpose criterion is linked with policy questions such as: How much money does environmental protection require/cost? What effect has environmental protection on company competitiveness? Data based on the effect criterion on the other hand would provide a more complete link to physical data such as changes in emissions or waste generated.

The use of a purpose criterion puts much responsibility on the party responsible for the actions. You can rightly argue that in the end only the company itself knows what the purpose of an investment is. But there might be a need for additional guidance, e.g. because a company may not always think of all the items the statisticians have decided should be part of environmental protection expenditure statistics, or might include items which the statisticians think should clearly be excluded.

<u>There are also additional criteria or requirements more or less explicit in the existing definitions, guidelines and/or practice:</u>

- The purpose is related to an intended "direct" function/effect of an activity or equipment. This is because you could rightly argue that, ignoring any idealistic motives, all the things a company does (including environmental protection) is in the end either to directly make money or because it has to. This means that included are expenditure for an investment where the direct function (purpose) is to minimise the generation of air pollution, taken by a company voluntarily to improve its environmental image or its perception by employees or the local community, so that it can sell more products in the future or can increase productivity, etc.
- When the only direct function/effect of the equipment is environmental protection, the total expenditure amount is considered as environmental protection expenditure. This would include all expenditures on end-of-pipe type of equipment such as filters, waste containers, sewage treatment plants etc (regardless of the purpose or possible profitability)
- When the main direct function/effect is normal production and not environmental protection, only a part if any of the expenditure should be included (extra cost, environmental share). This could also be used to check the expenditure reported by companies. It is clear e.g. that the main function/effect of an aeroplane or an electric car can never be environmental protection.

Questions:

Do you agree with the use of the purpose as the main criterion?

Do you agree with the use of the direct function/effect as a <u>supplementary</u> criterion?

3.1.2 Main purpose criterion and the case of integrated investments

According to the existing general definition of environmental protection, included are *actions or activities* where the *main* purpose is to protect the environment.

However, in practice, environmental shares of integrated investments have been included where the main purpose is normal production. In these cases, one interpretation is that the main purpose refers to the extra cost (or the choice of a more expensive and more environmentally beneficial equipment/process).

If needed, the existing general definitions could be amended to make clear the treatment of these cases.

- One possibility would be to use the word "expenditure" (money/resources) instead of "actions and activities". ("The money you spend to reduce pollution" or "Expenditure with the main purpose to protect the environment")
- Another possibility is to add a sentence with a reference to these cases such as "Actions and activities where the main purpose is environmental protection, including the purchase of more expensive and more environmentally friendly equipment (only extra cost)."

According to the existing definitions the total amount should be considered as environmental protection expenditure if the only purpose/function is environmental protection and when an environmental adaptation is made for environmental reasons so that existing equipment generate less pollution (joint questionnaire).

An extra cost or environmental part should be included when the environmental characteristics are totally integrated into new production facilities. In principle, the environmental part could range from 1-99 percent of the investment sum.

Questions:

Is there a need to adjust the existing definition of environmental protection to clarify the treatment of integrated investments?

If yes, how (e.g. one of the examples above)?

3.1.3 Profitability criterion

In addition, also the net-cost and the compliance criteria have been used for estimating environmental protection expenditure. Often, different criteria have been used for different applications and/or data sources, see Annex 1.

- You could e.g. use the net-cost or a profitability criteria of some sort as a main criterion for all variables (instead of the primary purpose),
- or only for those investments where the direct function/effect is not only environmental protection such as integrated investments (net cost or profitability complementing the primary purpose),
- or only for those integrated investments where the environmental part is not separately identifiable (to make sure that you exclude the normal commercial investments).

The net cost and the profitability criteria are closely linked. When an investment is profitable, there is simply no net cost to report. The net cost approach can be adopted both by asking directly for net costs, or by asking for gross expenditures and revenues separately and then calculating the difference. Existing definitions and practice use the latter approach.

There is nothing in the existing definitions that states that profitable measures should be excluded per se, although it could be difficult to argue that highly profitable investments are made mainly to protect the environment. There is only a general paragraph saying that "Actions and activities which have a favourable impact on the environment but which do not come under environmental protection are excluded. Hence, excluded from this field are activities which, while beneficial to the environment, primarily satisfy technical needs (=production) or the internal requirements for health and safety of the enterprise."

A profitability criterion specifies in more detail the paragraph above. The basic idea is that profitable actions would have been taken regardless of any environmental considerations i.e. when an investment is (highly) profitable there is no environmental (main) purpose.

The definition of revenues is very important both for the net cost approach and for the profitability criteria. There are two types of economic benefits as a direct effect of environmental protection activities, and one more long-term effect. If a profitability criterion is used, a decision has to be made on what revenues to include.

- The environmental protection activity generates a physical by-product which has an economic value. This by-product can be sold and generate revenues, or be used internally and reduce costs. Examples are energy generated through waste incineration, or internal recycling activities which recover metals. This is the most tangible type of revenue and only this (at least the revenues from sales) is collected e.g. in the joint OECD/Eurostat questionnaire or included in the SERIEE expenditure accounts.

- The activity can result in a more efficient production process that requires less energy and raw material per produced good, which leads to cost savings. These savings are directly linked to the environmental protection activity, but are more difficult to estimate for the respondents. These cost savings and the receipts from by-products were included in the variable "Operational benefits" in the now abandoned Eurostat specific questionnaire.
- One special type of cost saving is reduced payments for environmental fees and taxes. The use of economic incentives has increased and is likely to increase further (e.g. with the introduction of emission trading systems). One reason behind these measures is to make it more profitable to reduce pollution.
- The activities can also result in increased sales and market shares e.g. because of an improved company image. Companies may make predictions about these market effects for large and strategic investments. However, these are intangible benefits likely to be uncertain, influenced by many different factors, rarely made for small and specific investments/actions and hard to measure.

One problem with a profitability criterion seems to be the measurement problem. There is less experience in collecting data on revenues, but it seems that companies find these more difficult to estimate than the corresponding expenditure. Another possible problem is the fact that the size of the revenues, and therefore the possible profitability of the actions, could be volatile and depend highly on price levels of the by-products or saved energy/materials and/or the effect on sales.

The approach used today is to collect expenditures gross, while any associated revenues would be collected through a separate variable (which not many countries collect).

One example of how companies might argue based on the existing definitions (from the present Swedish survey):

One large company involved in mining (and steel) industry is required by the authorities to reduce their sulphur emissions. According to the company, there are two alternative ways of achieving this.

The first is a traditional end-of-pipe filter solution which captures the sulphur in the gases. This generates a type of waste that is put on a landfill. The second alternative is to invest in a plant that uses the sulphur to produce sulphuric acid.

The company chooses to do the latter, partly because they already have a problem with the waste put on landfill, and most likely because this is the most economical way to achieve the objectives. The company regards this as an environmental investment (in total), because of the requirements to reduce the sulphur emissions (main purpose), and because the investment would not have been taken on economic grounds since the value of the sulphuric acid is very low. The market for this product is overloaded. Sometimes they get a small sum for the product, some years they have to pay to get rid of the product.

Questions

Should a profitability criterion be used to describe what is normal production?

If yes,

On what level should it be used (general expenditure definition, only integrated investments etc)?

What should be counted as revenues?

3.1.4 Environmental protection in a life-cycle perspective

The existing general definitions refer to actions and activities which aim at environmental protection. Some of the definitions of the variables use the word production (activity or process).

As almost all the activities of an enterprise affects the environment in some way, the enterprise can take measures to reduce or treat pollution from the operating activity both from the actual production of their goods, but also from the transport, storage, sale activities and various support functions.

The resource or input side is a specific and important part of the environmental pressure from the production.

- When a company decides to switch to the use of an alternative input good, this can clearly affect the amount of pollution generated (e.g. solvent free paint, from oil to renewable energy). These actions could sometimes be guided in whole or partly by environmental considerations. The activities might lead to environmental protection expenditure in the form of initial investments to adapt the production facilities, and possibly extra costs for the use of the cleaner intermediate good.
- Also the amount of material or energy used per produced good clearly affects the pressure on the environment. Environmental policy usually includes both environment protection in a strict statistical sense, and resource efficiency issues (e.g. factor ten). It is more difficult to translate these activities into environmental protection expenditure and extra costs. It is likely that these measures are mainly profitable and taken on normal economic efficiency grounds. At the same time, combating an environmental problem such as global warming is highly dependent on the amounts of energy used and improved efficiency. The existing definitions state only that these activities are excluded unless the main purpose is environmental protection.

Some examples from the Swedish surveys:

In the 1997 survey, many enterprises reported as environmental protection adaptations of the furnace because they had switched from fossil fuels to renewable energy sources. They claimed this was done mainly to reduce emissions of CO_2. These were in most cases accepted as environmental protection expenditures because of the close link between the source of energy and the emissions (total cost of adaptation classified as integrated investment in the air domain)

Similar investments by energy producers was not treated as environmental protection, because their main activity is to produce energy and because no environmental part could be singled out.

In the present survey, many enterprises have reported different examples of energy saving equipment and devices. It has been decided to treat these as being outside the concept of environmental protection unless there is a very close link to emissions, because of an assumption that these would have been taken on commercial grounds. (The 1997 survey included a separate section on resource management and saving expenditure. It is likely that the tendency to report these types as environment protection has increased now that there is no such separate category.)

The enterprise can also take measures that would reduce pollution when the products are used or scrapped (outside the operating activity of the enterprise) e.g. by changing the design or content of the product. This is an environment industry activity (production of more environmentally beneficial – 'cleaner' goods), which would in theory (and to avoid double counting) enter expenditure statistics only as a possible extra costs for the purchasers of these goods. However, it is likely that this extra cost is in many cases not captured in existing statistics on the side of the purchasers.

In life-cycle analysis, all the activities described above would be included. For some enterprises or activities the main environmental pressure could come from the use of the products or when they are scrapped.

Environmental adaptations of products are (probably) excluded in most countries, or at least not mentioned specifically. The existing definitions do not mention this either. This is made clear in the proposal by CREA, where it is also proposed that "product related tangible fixed asses" (i.e. the investment needed to produce 'cleaner' products) are included if based on regulations.

Questions

Do you agree that the definition should be related to the operation of the enterprise (i.e. include transport, cantine, etc. but exclude product-oriented measures)?

Do you agree with the proposal by CREA to make an exception for product-related tangible fixed assets?

Do you agree with the current general recommendation on resource management and savings activities?

Do you have examples of resource management- and savings-related activities which you think should be regarded as environmental protection (e.g. solar panels, or all measures to reduce global warming)?

3.1.5 The "economic" definitions

Total environmental protection expenditure is a sum of different economic variables. On an aggregate level there are investments and current expenditure.

Investments could consist of a number of things: machinery, equipment, buildings, land etc. Current expenditure consists of e.g. costs of personnel, energy, material, research and development services etc. Expenditure statistics tries to single out the environmental component of each of these different economic variables and indicators in the form of environmental shares (e.g. of total investments).

There are existing specific and detailed definitions and guidelines for these economic variables (although not always identical): in the national accounts, in business statistics, in company accounts etc. The expenditure variables should follow the same definitions. Companies will most likely use the same definitions for the environmental protection as they use in their company accounting system (e.g. what to include as investment).

This means that the definitions and guidelines could be short, with reference to existing definitions, and perhaps highlight some specific issue such as large investments over several years, treatment of leased equipment, or what to include under cost of personnel.

The costs of personnel would normally include the gross salary including employers and social security taxes. Then there is a choice whether you should include the part of the overhead directly linked with the environmental protection work (e.g. administration related to this personnel) although this might be more difficult for the respondent to estimate, or maybe even more general overheads (contribution to the general director and management board etc).

The existing SBS regulation includes definitions of economic variables. Environmental protection investments should be a part of the variable Gross investment in tangible goods (for definitions see Annex 2), which in turn is the sum of the variables gross investments in land, existing buildings and structures, construction and alteration of buildings, and machinery and equipment.

Questions

What are your experiences with investments that continue over more than one year?

What should be included as staff costs for environmental protection?

Are there additional issues related to the economic definitions where more guidance is needed?

3.2 CAPITAL EXPENDITURE

3.2.1 Defining the borderline between end-of-pipe and integrated

The existing definitions mix two different characteristics to distinguish between the types of investment.

- End-of-pipe investments take care of and treat pollution already generated, while integrated investments prevent the generation of pollution (Pollution treatment vs. Pollution prevention).

AND

- End-of-pipe investments are separately identifiable, while integrated investments are not separately identifiable so an extra cost (environmental part) must be estimated.

Experience has shown that it is not always obvious whether an environmental investment should be classified as end-of-pipe or integrated. One reason is that there could be investments which are both preventive in character AND separately identifiable (see section below for examples). Another reason could be that the existing definitions focus mainly on strictly production related investments and give less guidance on how other types of investments should be classified.

The relative size of the two investment types would differ depending on which of the criteria is chosen as the main characteristic.

1. A division according to the nature of the investment into pollution prevention or treatment is in some respects more policy oriented. The share of end-of-pipe versus integrated investments could be an indicator of how much money is spent on keeping the status quo, and how much is spent on reducing the actual generation of pollution.
2. A division according to what is identifiable is in some respects more data oriented. It has the advantage that it keeps separate the part that is the most difficult to estimate and where the data thus is less reliable.

Two alternatives to distinguish between end-of-pipe and integrated investments

	Alternative 1 "Investment nature" ⇓	Alternative 2 "Identifiable" ⇓
Pollution treatment	*Preventive and*	Pollution prevention
Separately identifiable	*separately identifiable*	Not identifiable

Questions

Should some recommendation be formulated to make data more comparable across countries?

Should all preventive measures be included in the variable integrated investments (alternative 1)?

Do you have additional examples which makes the distinction between the two types difficult?

3.2.2 Types of integrated investments and guidelines for estimation

The variable integrated investments could be divided into different categories or types, depending on how you define the borderline between end-of-pipe and integrated. If you use pollution treatment and prevention as the main criteria, there could at least be three aggregate classes of integrate investments.

1. Adaptation of existing equipment.

   The first example relates to adaptations of the existing equipment and process so that it generates less pollution. Environmental protection could be the only, main, or part of the purpose of the activity. Examples could include investments needed when a company change to a more beneficial input e.g. solvent-free paint or adaptations of the furnace when the company moves from oil to renewable energy sources. These investments could clearly be separately identifiable.

2. Integrated with environment as the main purpose.

The second category refers to integrated investments where the main purpose is to reduce pollution. One example from the last Swedish survey: An enterprise in the wood industry is required by the surveying authorities to reduce the emissions to water. Much of the emission comes from the storage of timber. The timber is watered and this creates a run off (drainage) to surface water. There is a correlation between the amount of water used and the amounts of emissions to water. The company decided that the best way to reduce the emissions was to invest in equipment that minimised the amount of water needed. The reduction of water leads also to some reductions in costs although there is good availability of water in Sweden at low prices. (Total amount was classified as integrated investment in the water domain). Another example could be forced replacement of an existing process or technology that would otherwise remain in use. For example, a ban of cleaning solvents may require early replacement of equipment.

3. Multi-purpose investments where the main part is production.

   The third category refers to the cases where there is an environmental purpose but the main purpose is usually production. This refers e.g. to the case when a new equipment is bought which is needed for the normal operation of the enterprise, but when the company chooses a variant which is more beneficial to the environment (or a specific adaptation) than it would have chosen if it disregarded environmental considerations. This category includes investments where the environmental characteristic is very important although secondary but also investments where the environmental purpose and/or characteristics are only of minor importance. (But, in principle, there could be investments where the environmental share is very small but the expenditure high compared to other environmental protection investments.)

The existing general definitions/practices define total expenditure as all money spent with an environmental purpose. In principle, this means that an environmental part should be estimated as soon as environmental protection is not the only purpose (or direct function, see above) – in all cases between 0 and 100 per cent.

The existing definitions include recommendations that an environmental part can be estimated by comparisons with an equivalent standard reference technology. The standard reference technology needs to be defined e.g.

- Should comparisons be made within the industry, the country, or also abroad?
- Is it the most polluting version in existence, or the most common, or the cheapest?

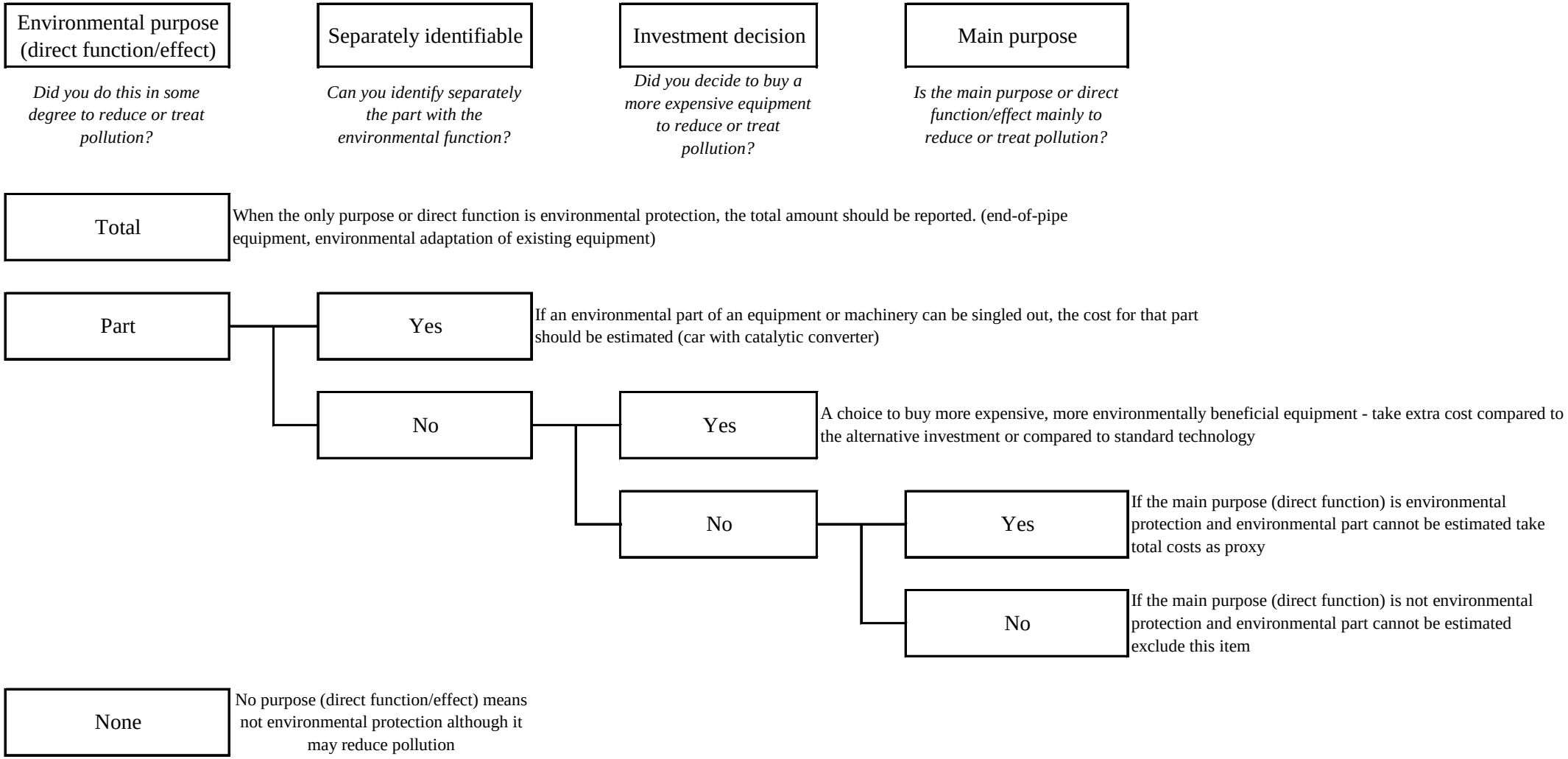
Some enterprises argue that there is no easily defined standard reference technology which could be used for estimations of extra costs. The investments are to a large extent company specific i.e. adapted to the particular situation of the individual enterprise (e.g., chemical processes).

There is also a question when the more environmentally friendly technology becomes standard or reference technology, and when there is no longer an environmental expenditure. The rather paradoxical results of the applications of the above recommendations is that end-of-pipe equipment will always remain environmental expenditure, while different types of integrated investments will appear, count as environmental protection for a limited time and then disappear as they become the standard equipment. This seems to be a mechanism that stabilises the relative shares of the two types of investments, but it is consistent with if the main purpose is to measure effects on competitiveness across countries.

It could be possible to make some simplifications and delimitations in the guidelines to enterprises, in particular if the expenditure is difficult to estimate or when this would not affect much the total expenditure reported by the enterprise.

For the quality and coverage of the statistics, a useful general guide is that the most important thing is to capture well the largest investments and items of current expenditure *in terms of expenditure*. Different sources for estimating the expenditure and possible simplifications is outlined in the figure below. It is general in nature but should be most relevant for integrated investments. It is likely that enterprises responding to expenditure questionnaires to some degree will make similar simplifications even without specific instructions.

Decision tree for estimating environmental protection expenditure



Questions:

What are your experiences as regards comparisons with a standard reference technology (examples)?

How should a standard reference technology be defined and used?

Is it a problem that end-of-pipe investments are always counted while integrated are systematically phased out?

Is there a need to include simplifications or delimitations in the definitions and guidelines as exemplified in the figure above?

If yes,

Do you agree with the simplifications proposed (also by CREA) and/or do you have additional proposals?

What are the mechanisms/recommendations to ensure good quality data on integrated investment?

3.3 CURRENT EXPENDITURE

Current expenditure for environmental protection could be defined as everything that is not investments (excluding calculated items such as depreciation/consumption of fixed capital), since the sum of investments and current expenditure should make up the total expenditure on environmental protection.

Current expenditure should be directly related to an environmental protection activity either taken on by the enterprise itself or what other bodies do on behalf of the enterprise (payments to others, external current expenditure). The latter include obvious items such as the payments for collection and treatment of the waste or wastewater generated by the enterprise, but could also include surveillance fees to public bodies etc.

Payments of fines or penalties, compensations for damages and (probably) any purchases of emission permits would be excluded since these are not linked with an environmental protection activity (but they could be environment-related costs).

Current expenditure is the sum of many different items which could be divided into different categories.

- It could be divided between in-house expenditure of different types and payments for bought services (what other bodies do on behalf of the enterprise).
- It could be divided into cost types such as material, energy, personnel etc
- It could be divided according to the nature of the activity into operation of environmental equipment, waste collection and treatment, wastewater treatment, environmental administration, environmental management and certification, environmental research and development etc
- It could be divided into the environmental domains of CEPA

There are at least two possible problems of a more general nature for the companies to estimate and report current expenditure:

1. For some of the items there could be problems to single out or separate the environmental expenditure part. This includes the operation of integrated equipment and the purchase of more expensive and environmentally beneficial non-capital goods. For these items only an environmental part or extra cost should be included.
2. There might also be a practical problem to include all the different potentially numerous current expenditure items.

An important part of total current expenditure is the expenditure for the use of the enterprise's own personnel for environmental protection activities (at least around 30 percent of total current expenditure in several countries). This could include maintenance of the equipment, collecting, sorting and treating waste, general administration, information and environmental education of the staff etc.

Some parts of the staff costs are more easily identifiable, in particular expenditure for the people mainly involved with environmental protection (environmental manager, people working at the wastewater treatment plant etc), and some specific actions such as education of the staff.

It might be more difficult to estimate the time devoted to environmental protection for the people where this is only a very small part of the normal working day. There might also be a need to specify what the staff costs should comprise (e.g. the direct administrative overhead), see section 3.1.5.

Questions:

Do you have examples of current expenditures other than those listed above and by CREA which you think should be included?

Do you think that there is a need to limit the scope of the variable in the general definitions and/or through recommended guidelines?

If yes,

Do you agree with the proposal made by CREA?

ANNEX 1.

DRAFT SYSTEM OF INTEGRATED ENVIRONMENTAL AND ECONOMIC ACCOUNTING (SEEA) - CHAPTER FIVE (EXCERPT)

Environmental protection activities

5.1 Environmental protection activities are those where the primary purpose is the protection of the environment, that is the avoidance of the negative effects on the environment of economic activities. An example is spending by companies on end-of-pipe capital equipment to reduce or eliminate emissions, or spending on "clean" technology to minimise emissions and pollutant discharges during the production process. By convention, this section also includes spending on clean technologies where only part of the new equipment has an environmentally beneficial component. For example, equipment may need replacing at the end of its life, which is the reason for the investment, but the primary purpose of the "clean" element is to protect the environment. The activities are generally classified by the environmental "domains" which are protected for example air, water, soil and groundwater, biodiversity and landscape.

5.2 Relevant activities and expenditures are identified by the criterion of the primary purpose. Within this "primary purpose" definition, several variants or sub-sets have been used either in combination or separately. The criteria below may also be adapted to identify other environment-related activities and expenditure.

A) ***The pure purpose criterion.*** Activities and expenditure where the main objective is protecting the environment are included in full. This criterion works best where the main objective of protecting the environment is clear and unambiguous for example end-of-pipe capital expenditure.

B) ***The extra-cost criterion*** is used to identify the portion of the cost of cleaner/integrated technologies and changes in process as well as cleaner (adapted) products to be attributed to environmental protection. The investment and operating expenditure are compared to those of a 'standard' or 'dirty' alternative, if there is one, or the estimated additional cost of incorporating the environmentally beneficial feature. Only this extra expenditure is considered.

C) ***The net-cost criterion***. Only expenditure undertaken for environmental protection purposes and that leads to a net increase in cost (that is where spending exceeds any associated savings or income) is included. When expenditure is recorded, this criterion only applies to operating expenditure.

D) ***The compliance criterion***. Expenditure undertaken with the main objective of protecting the environment but specifically in order to comply with environmental protection legislation, conventions and voluntary agreements. This can be further sub-divided to show those activities and transactions undertaken in order to comply with legislation only. A variant of A.

5.3 These definitions do not form an exhaustive, mutually exclusive set. They are simply a practical set of working definitions which have been adopted for particular applications. For example, when analysing public budgets it will often be impossible to identify the environmental share or the net cost when classifying transactions so criterion A might be used. When conducting surveys of environmental expenditure of corporations criterion A alone is less useful and a combination with other criteria might be used. This explains a basis of criteria C and D which are variants of criterion A.

5.4 For dual purpose expenditure, activities and actions, for example investment in new technologies which incorporate improvements environmental improvements, or integrated investment programmes by public bodies, it is usually more difficult to collect separate information since expenditure information on the environmental component is generally not available or easily estimated. The cost criterion (criterion B) is most useful for multi-purpose actions. It cannot be used alone but only in combination with other variants. The cost criterion alone would exclude from environmental protection those measures undertaken for environmental protection reasons but which result in net savings. Examples are energy saving or increases in productivity which are higher than direct gross costs. A particular case are in-house (ancillary) activities that substitute the purchase of marketed environmental protection services. For example, net savings could occur because of reduced waste treatment bills resulting from starting an own account waste treatment activity but the costs of ancillary activity would have to be counted in place of the previously bought in service.

5.5 The net-cost criterion (C) excludes from environmental protection those measures undertaken for environmental protection reasons but which result in net savings for example cleaner technologies leading to energy cost savings that satisfy some pre-defined standard for return on investment (ROI) This criterion also excludes sales of by-products of environmental protection activities. Valuable information might therefore be lost using this criterion. Use of the net cost criterion is best restricted to identifying expenditure associated with cleaner technologies, processes and products.

ANNEX 2.

COMMISSION REGULATION (EC) NO 2700/98 CONCERNING THE DEFINITIONS OF CHARACTERISTICS FOR STRUCTURAL BUSINESS STATISTICS (EXCERPTS)

Investment definition

Code: **15 11 0**

Title: **Gross investment in tangible goods**

Definition

Investment during the reference period in all tangible goods. Included are new and existing tangible capital goods, whether bought from third parties or produced for own use (i.e. capitalised production of tangible capital goods), having a useful life of more than one year including non-produced tangible goods such as land. The threshold for the useful life of a good that can be capitalised may be increased according to company accounting practices where these practices require, a greater expected useful life than the one-year threshold indicated above.

All investments are valued prior to (i.e. gross of) value adjustments, and before the deduction of income from disposals. Purchased goods are valued at purchase price, i.e. transport and installation charges, fees, taxes and other costs of ownership transfer are included. Own produced tangible goods are valued at production cost. Goods acquired through restructuring (such as mergers, take-overs, break-ups, split-off) are excluded. Purchases of small tools which are not capitalised are included under current expenditure.

Also included are all additions, alterations, improvements and renovations which prolong the service life or increase the productive capacity of capital goods.

Current maintenance costs are excluded as is the value and current expenditure on capital goods used under rental and lease contracts. Investment in intangible and financial assets are excluded.

Concerning the recording of investments where the invoicing, delivery, payment and first use of the good may take place in different reference periods, the following method is proposed as an objective:

Investments are recorded when the ownership is transferred to the unit that intends to use them.

Capitalised production is recorded when produced. Concerning the recording of investments made in identifiable stages, each part-investment should be recorded in the reference period in which they are made.

In practice this may not be possible and company accounting conventions may mean that the following approximations to this method need to be used:

(i) investments are recorded in the reference period in which they are delivered,

(ii) investments are recorded in the reference period in which they enter into the production process,

(iii) investments are recorded in the reference period in which they are invoiced,

(iv) investments are recorded in the reference period in which they are paid for.

Link to company accounts

Investment is not recorded in the balance sheet. However, the additions, disposals and transfers of all fixed assets as well as the value adjustments of these fixed assets are shown in the balance sheet or the notes to the accounts.

Tangible goods are listed in company accounts under *Fixed assets — tangible assets.*

Link to other variables

Gross investment in tangible goods is based on:

Gross investment in land (15 12 0),

+ *Gross investment in existing buildings and structures* (15 13 0),

+ *Gross investment in construction and alteration of buildings* (15 14 0),

+ *Gross investment in machinery and equipment* (15 15 0).

Definition end-of-pipe investment

Code: **21 11 0**

Title: **Investment in equipment and plant for pollution control and special anti-pollution accessories**

(mainly 'end-of-pipe' equipment)

Definition

Investment expenditure resulting from actions and activities which have as their prime objective the prevention, reduction and elimination of pollution and any other degradation of the environment.

Actions and activities which have a favourable impact on the environment but which do not come under environmental protection are excluded. Hence, excluded from this field are activities which, while beneficial to the environment, primarily satisfy technical needs or the internal requirements for health and safety of the enterprise. This restriction applies in most cases to recycling activities classified under NACE 37.00 (recycling). Data collected for this industry should not be added to other NACE headings (see classification of environmental protection activities UNECE/Eurostat DOC/CES/822).

End-of-pipe equipment concerns additional technical installations for use in the context of environmental control. These installations operate independently of or are identifiable parts added to the production facilities, treat pollution that has been generated, prevent the emissions or spread of the pollutants or measure the level of pollution (monitoring). The investment is calculated by the purchase price or construction cost of the installation, including design and installation costs. The purchase of land necessary for the installation is also included. Expenditure made principally for the purpose of health and safety inside the workplace should be excluded.

These investments occur in activities such as the reduction, prevention or treatment of waste and waste water, the prevention and elimination or reduction of air emissions, the treatment and disposal of contaminated soil and ground water, the prevention or reduction of noise and vibration levels, the preservation of ecological entities and landscapes as well as the monitoring of the quality of the environmental media and waste.

Link to company accounts

Investment is not recorded in the balance sheet. However, the additions, disposals and transfers of all fixed assets as well as the value adjustments of these fixed assets are shown in the balance sheet or the notes to the accounts. Investment in equipment and plant for pollution control and special anti-pollution accessories is included, but not isolated in the list of tangible assets included in company accounts under *fixed assets — tangible assets.* The Advisory Accounting Forum has proposed that this information should be disclosed.

Link to other variables

Part of *gross investment in tangible goods* (15 11 0).