

HOW ARE BUILT FRENCH REGIONS MANAGERIAL PRACTICES IN ENVIRONMENTAL ACCOUNTING ?

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ABSTRACT

Environmental Accounting (EA) by bringing the economy and the environment together provides more information and promotes transparency and accountability of political action with regard to the environment. It's a system that allows to list, organize, manage and provide integrated data and information on the environment and, most often, the economy through physical indicators. But, it is also "an efficient system of information on the degree of scarcity of natural elements linked to business activity, used to reduce that scarcity and inform third parties" (Christophe, 1992). If the analysis of the environmental effects of the organization's activity falls within the field of life cycle assessments and other life cycle studies conducted mainly by engineers, the third of the information is shown in the accounts. Thus, the EA provides the state and changes of natural heritage, interactions between economy and environment, as they do not cause monetary flows, or spending on prevention, protection and repair environment. Compared to the conventional national accounts, the EA allows for a better integration of environmental concerns into the calculation of macroeconomic aggregates. Finally, it is an assessment and a modeling tool of economic and environmental policies.

The activities are mainly based firstly on developing a methodology for compilation of accounts adapted to the national context and which is largely based on existing systems (the United Nations system, the European system, the Canadian system, etc.), secondly on awareness and reinforcing capacities of the different stakeholders (producers and users of environmental data).

Since the recommendations of the Council of Europe in that field, French local and regional authorities are involved in so-called environmental actions that involve in indicators development. Those actions are also sometimes listed as devices to support innovative projects involving several stakeholders of different nature. Our double research question is therefore following :do those managerial practices- with regard to the environment- enable to take advantage of those indicators ? If so, how to translate them in the emergence of an accounting system including the notion of cost and expense, stocks / flows and, then, result ?

This study aims to analyze the development and impact of these environmental

indicators from a qualitative, exploratory, and critical study by backing upon websites and data sets of the 22 French regions and measures which have been taken in the area of energetic transition. In the interests of a better knowledge of environmental issues and performance linked to it, those regions have developed action plans for appreciating and monitoring of each measure whose approach of different costs, except the overall funding dedicated, is forgotten mostly. But from the perspective of a true vision of a reliable accounting information system, the cost calculation would be required, allowing thus for a better approach of expenditure and revenues generated by the different actions. This is the "monetary" challenge of the establishment of a new environmental accounting within local authorities.

Keyword:environmental accounting, indicators.

Introduction

Environmental Accounting (EA), while it brings economy closer to environment provides more information and promotes transparency and accountability of political action with regard to the environment. It's a system that allows to list, organize, manage and provide integrated data and information on the environment and the economy through physical indicators most often. But it is also "an efficient system of information on the degree of scarcity of natural elements linked to business activity, used to reduce this scarcity and to inform third parties" (Christophe, 1992). If the analysis of the environmental effects of the company's activity falls within the field of life cycle assessments and other life cycle studies conducted mainly by engineers, the third of the information is shown in the accounts. Thus, the EA provides the state and changes of natural heritage, interactions between economy and environment, as they do not cause monetary flows, or spending on prevention, protection and repair environment. Compared to the conventional national accounts, the EA allows for a better integration of environmental concerns into the calculation of macroeconomic aggregates. Finally, it is a tool for assessing and modeling economic policy and environmental activities are essentially based firstly on developing an accounts compilation methodology adapted to the national context, which is largely based on existing systems (the United Nations, the European, the Canadian system, etc.), secondly on awareness and capacity building of different actors (producers and users of environmental data). Since the recommendations of the Council of Europe in this field, local and regional authorities are involved in so-called environmental actions involving in indicators development. These actions are also sometimes listed as devices to support innovative projects involving several stakeholders of different natures. Our double research question is therefore this: Do management practices with regard to the environment enable to take advantage of these

indicators? If so, how to translate them in the emergence of an accounting system including the notion of cost and expense, stock / flow and thus an "environmental" result ? We backed our analysis on the French regions through their annual reports and their website as part of Agenda 21 and more specifically the action plans implemented for this purpose. Our approach is essentially qualitative, exploratory, critical, analytical and forward-looking. After conducting the literature review, we shall develop our basic assumptions which will be followed by our research methodology, then we shall define the empirical framework before analyzing the results.

1. Context and literature review

1.1. Context

Depending on the period, and over the years, attitudes to face environmental organizations have evolved significantly. The table below shows a realization from 1980.

Table 1. Evolution of the attitude of the company towards the environment

PERIODS	ATTITUDES
1950	Ignorance
1960	Disclaimer
1970	Debate
1980	Awareness
1990	Commitment
2000	Performance

Source: taken from Gendron (2004, p. 22)

In the late 1970s, and FleishchmannPaudke (1977) and VereinDeutscherIngenieure (1979) were the first authors to deal specifically with environmental accounting (Schaltegger and Burritt 2000). Their efforts were to separately calculate the costs and benefits related to the implementation of anti-pollution measures. Echoed by many US firms in early 1980 to evaluate the projects of investment in environmental technologies, environmental accounting has remained a largely marginal practice until 1990 (Bennett et al., 2002).

Traditional accounting tools do not provide information adapted to specific needs related to environmental issues. Environmental information is very often found embedded in costs

and income aggregates, not allowing to identify the profits and losses inherent in that area. This inefficient allocation of costs complicates the process of decision making.

Our literature review is based on the EA theory and stakeholder theory in a context in which the environmental dimension is taken into account by all public organizations. These, based on annual reports, should inform on the results of measures taken within the framework of the energy transition and thus sustainability.

1.2. The literature review

For many years, the literature on environmental national accounts has been dominated by the publications of the American school (especially those the work of Cobb and Cobb on "The Green National Product (green national product)" and Cobb, Halstead and Rowe GPI (Guenuine Progress Indicator), despite some unknown European breakthroughs. However, the literature of environmental accounting business will grow more in Europe (especially in continental Europe), notably with the publications of French authors like Labouze(1991), Christophe (1989, 1992), Antheaume (1996, 1999), the Swiss Schaltegger (2000) and the English Gray and Bebbington (1993). A very large literature has also emerged in Japan and India, but the barrier of language played a deterrent role. That being said, several conceptual approaches exist.

1.2.1. The different conceptual definitions of EA

Mikol (1995) believes that developing a green economy consists systematically in taking into account the costs related to the protection and reinstatement of the environment. This is to respect the traditional role of accounting and reporting flows and environmental risks in order to provide stakeholders with a true picture of the company.

Christophe (1992b, 27) says that in terms of objectives, the EA becomes a tool to improve the damage caused by the company. It is then a tool to improve environmental performance and to participate in the reduction of nuisance that the environment suffers overall. "The EA is an efficient information system on the degree of scarcity of natural elements related to business activity, used to reduce this scarcity and to inform third parties."

For Gray, Bebbington and Walters (1993), the EA is a passive tool recording immediate or future, or some potential cash flows, but it is a lever to change businesses towards activities and strategies that fit in the logic of sustainable development.

For Shrivastava (1995), sustainable development, environmentally sustainable development also constitutes the theoretical basis for building a business ecologically

sustainable. However, natural resources are limited and there is an operating threshold of these resources, beyond which economic growth today can harm the future.

Those works would renew paradigms in organizational theory and management practices, including accounting. However, sustainable development, environmental protection is essential, but it also has an industrial, organizational, political-economic, socio-cultural and ecological perspective which means vital and global issues such as the impact of populations on ecosystems, food security and natural resource management (Starik and Ranelis 1995). Finally, according to Tushman and Anderson (1986), the EA is a technique corresponding to a set of tools, processes and knowledge that constitute an interface between the inputs and output stream.

Although the authors do not mention the type of organization (whatever it may be public or private), so we develop our first assumption that, whatever the organization, designing a EA means identifying the costs related to various environmental actions, at the same time building strategies to limit the reduction of natural resources on the basis of a healthy flow management while enhancing revenues are expected.

Our second postulate is defined in the sense that for a good environmental accounting information, it is important to give value to indicators. Those indicators and their values are all the more important than they are to ensure enhanced communication towards stakeholders.

1.2.2. The EC as a duty of informing stakeholders

The EA can be seen at several levels:

- It is a set of techniques to improve information of stakeholders;
- It is a set of techniques to improve the environmental management of the company and act on a global plan for the natural environment;
- Finally, it is a set of techniques to improve business management and be a part of a sustainable development logic

The first work by Freeman (1984) is undoubtedly the starting point of stakeholder theory. It was for that philosopher, to offer an alternative vision of the firm and its environment in terms of stakeholders and from there, a new approach to business strategy. Stakeholders are defined "as any group or individual that can affect the achievement of business objectives or be affected by it." Therefore, it is not worth considering restrictive visions of the strategy which limited themselves to the company's confrontation with its only shareholders (agency

theory) or only competitors (competitive advantage theories like those of Porter). Freeman then invited to integrate into the strategic management a set of sociopolitical variables, beyond the only competitive forces or injunctions of shareholders.

Evan and Freeman (1983/1993) fit into the stakeholders the closest executives (management) alongside employees, shareholders, customers, suppliers and local community. The firm remains at the center of the constellation of stakeholders becomes curiously devoid of substance. It is defined only by its relations with all groups, management (directors) being defined by "its role as an agent of these groups" (Evan and Freeman, 1983/1993: 255). The central idea, according to these authors, is that the role of leaders, rather than be defined by exclusive duties to shareholders, is characterized by the fiduciary relationship that leaders have with all stakeholders. The relationship with shareholders is no longer exclusive; moreover, it is redefined in terms of essential support to the company's survival and legitimate demands on it, that is to say in the same terms as relations with other stakeholders in the narrow sense. Evan and Freeman consider that the firm must be re-conceptualized around the question "for the benefit of whom and at whose expense the company should it be managed?" (Ibid. 255).

According to Freeman (2008), in research on the social responsibility of the company (SRC), the ethical dimension is an alibi looking for profit and is not integrated into the quest for performance; Moreover, he says that Friedman, Williamson and Jensen (2008: 162) are theorists stakeholders. He recalled that the stakeholder theory is focused on creating value and simply deals with about what a good management is.

The communities are the French regions in terms of providing information to stakeholders, have the task to explain the content of their modes of action in the framework of EA because it comes to public policy for which a budget is dedicated.

Other authors (Richard, 2013) have defined classification criteria and even developed a typology of EA. The seven criteria that have been proposed are :the meaning of the relationship with environment, the size of environment, the capital conservation mode, the spatial dimension of information, the degree of detail of information, the type of recovery data and the concept of result.

Regardless of the cost of setting up and operating an environmental management system, environmental laws and regulations require companies and organizations with financial constraints with not insignificant effects that involve in a definition and accounting cost analysis. It's about :

- the limitation of the harmful GHG emissions,

- the management of remediation costs of polluted environments,
- the payment of environmental taxes and charges,
- the coverage against environmental risks and the fact of maintaining the brand image - including environmentally friendly.

All that requires a heavy investment in pollution control facilities, in changing the industrial process, relocation of production, a compensation process of third people who have suffered from environmental damage caused by the company. The valuation of the accounting implications of the environmental aspects of the activity and their proper inclusion in the financial statements and management accounting become therefore an obligation for a sound management of the public organization.

"Apart from the recommendations of the European Union, some searchers have developed environmental performance indicators which enable to calculating the net added value of firms, while considering the impact of their activities on the natural environment" (Richard, 2013).

The third premise that we can draw from that approach is the need to develop environmental accounting information to promote a more efficient management, particularly with regard to the accountability to stakeholders including the citizen-taxpayer.

The field of investigation we have chosen is that of the French regions - through the regional councils - which are responsible for locally declining European and national recommendations in terms of EA.

2. The field of investigation in the national context of energy transition

2.1. The action of the French regions and the environmental impacts

In the environmental field, we focus on two axes : firstly, the fight against climate change and protection of the atmosphere with all its components, secondly, the prevention of biodiversity associated with the protection of natural environments and resources. Since the Rio Summit and recommendations from the Council of Europe, the French regions have implemented actions in the framework of Agenda 21 whose aim is to develop initiatives to assess and monitor environmental indicators. To do this, they have restructured themselves by environmental field, or in other cases, by domain group; in this regard, the project managers are tasked to follow up on these indicators, as a result of actions undertaken in the framework of strategic plans determined to carry out the energy transition. All of these information are intended to provide stakeholders with the elements of understanding and analysis of trends

and developments in environmental action, based on measurements that have been made.

The framework for the exercise of local authorities is geared towards the concept of environmental action. An environmental action is a basic and indivisible unit which has been chosen to identify projects, actions and achievements of communities in favor of the environment. An action is defined at least by an actor (belonging to the municipal assembly), a purpose, a financial flow, a hardware implementation, a date. Other elements allow qualifying action detailing its context and to refine the analysis, but are not essential.

For local authorities, the core question is to know to what extent the action has positive effects on the environment and not how much it really costs to the community or how it brings money.

However, several elements come to change the steps of an action :

- the analysis of the environmental effect in the case of an uncertain ecological balance, the action can be "cut" to reach a share of undeniable environmental nature.
- the charging to an environmental objective: it is impossible to determine a dominant objective, we must redefine the action to achieve or actions mainly oriented to one of the four objectives (protection of the resource, personal protection / health, optimization, quality of life).
- the measurement: to avoid taking into account additional costs, to redefine a more specific action can be useful ; when the data are unavailable for one particular action, it is necessary to deal it with another one.

But from our point of view, those elements remain insufficient in the emergence of a "real environmental accounting".

2.2. The indicators for monitoring

The indicators of integration, of consistency, of relationship between actions are summary data on the implementation and integration of local environmental policies. However, extensions may be made by working at finer scales such as the service. Working on the negative effects of the action of the Communities on the environment could show the efforts to be undertaken to avoid harming it. These efforts might be more effective than those that this method proposes to measure.

2.3. Positioning of the community with regard to environmental policy

A competence approach is not enough: Community intervention is not limited to the strict framework of legal expertise, especially in the moving field of environment. The division of powers is enshrined in particular decentralization laws. The first article 83-8 of the French Law of 7, January, 1983 states that "municipalities, departments and regions compete with State in protecting the environment and improving the living environment."

Our three postulates synthesized are based on the following idea : the EA, as a quantitative information system on the use of natural resources and the actions of prevention and repair of environmental damage can not be sufficient in itself; indeed, it must lead to a monetary value of data collected and expenses incurred in order to generate a regional accounting result within an environmental report. To analyze our phenomenon studied, our methodology is qualitative.

3. Research Methodology

3.1. Methodology and sample

We considered a qualitative, exploratory, analytical, critical and prospective study of practices done in terms of evaluation of the measures taken as part of the energy transition by the French regions. In a view of a triangulation, we interviewed in the exploratory phase, three service managers and project managers.

3.2. Research and data collection

To carry out this research, we focused on action programs in place, on the content French regions websites, on annual and external evaluation reports and on datasets available on open data. First, in terms of recommendations at the national level based on a common foundation, then in terms of local versions, each region with local particularities and idiosyncrasies that induce measures adapted to the geography (mountain country, coastline, river aspects, etc.). We have been also interested in data collected by the regions as part of the energy transition and tried to identify the types of practices that regions build and how they deal with the information collected. That approach allowed us to see its limits and to guide our analysis to regional and accounting conditions of a monetary valuation of environmental actions.

4. Results and Discussion

4.1. Results

The analysis of the results we have found required several readings.

4.1.1. A lack of uniformity in the lexical presentation of environmental "actions".

A first reading of websites reveals a difficult readability of the following findings in terms of the public in the display of the actions of the French regions: if the formulation of action plans in the context of regional plans for territorial development (RPTD) varies in each region in terms of its topography, its resources and its environmental risks, the sense of action is the same from one region to another, even if the terminology varies between "political" (the word appears in five regions) and "actions" (three occurrences). The term "environment" appears sixteen times and the concept of "sustainable development" displays a eight times frequency. Furthermore, the notion of "territory" displays a frequency equal to six. Finally, one area adopts the term "regional strategy" on its website. Overall, the strategic axes via various notions are, in the regions the issues to follow, the monitoring indicators. That diversity of actions reflects naturally different conceptual approaches, which would tend to say that there are environmental actions which are not strategic, much less "political", while budgeting these activities belongs to the field of public policy. In this regard, a common terminology would tend to facilitate the readability of the information available.

4.1.2. An absence of the concept of EA in terms of value

A second reading of the websites does not allow to find the term "environmental accounting". This is supported by the content analysis of three interviews: in fact, among the surveyed executives (department managers, project managers in sustainable development), none of them has the slightest idea of its definition and therefore its translation in an accounting field. Furthermore, no dedicated service addresses accounting of the costs of environmental actions. The calculation of support projects exists but remains global.

4.1.3. Global and limiting primitive budgets

A third reading of primitive budgets shows, for regions that have posted them on their website, an oversimplification of data: in a rather schematic way, the amount of budget allocated to the environment, knowing that that one has a very broad meaning but often incomplete, is presented in terms of budgets allocated, while at the same time, the amount corresponds to the expected or stored recipes is zero. In accounting terms, that may be a nonsense.

For each environmental area below, a table summarizing these items is to monitor

environmental issues. It's about :

- the economy of natural resources and climate change,
- the urban and environmental quality of built spaces,
- the spatial integrity of natural areas,
- the quality of water,
- the safety of people and property.

4.1.4. Accounting management practices oriented to a physical quantification

A fourth reading of the data yielded the following results: the management tools used often revolve around indicators. These indicators associated with ratios are developed across the municipal and territorial entity. A future step may provide to develop these tables in each municipality of the municipal assembly for some comparisons. But this work needs to fully reconsider the approach to each municipality, that is to say to take every action committed to a broader level than the municipality to calculate the expenditure to be put at that level. Using the determination of indicators is regular. The method allows to gather useful elements for the conduct of local environmental policies:

- aquantification of environmental expenditures and revenues per area (water, waste ...);
- aphysical state of the environment and the relationships between the different actors involved in the territory;
- apublic presentation of specific contributions of various institutions dedicated to the environment (water agency, energy agency, etc.)

The results produced are also a basis of information for:

- themonitoring of public service delegations;
- theparticipation and involvement of citizens in environmental issues;
- the identification and monitoring of intentions and results of managed policies;
- thequestioning the responsibilities for pollution and action for the environment.

The table below gives a broad idea of environmental areas for which physical data are collected.

Table 2. Environmental themes and physical values attributed annually

Fields	Physical values
Water	Cubic meters of water collected Cubic meters of water distributed Storm and rainwater Network length Cubic meters of water consumed by the municipal area
Waste and cleaning	Tonnage of waste collected Treated waste tonnage Linear kilometers of road Tonnage of waste produced by the municipal area
Green spaces and landscapes	Surface of managed green spaces Managed natural surface
Wildlife	Number of animals welcomed
Energy	KW per hour consumed by the municipal area - electricity - Gas Liters of fuel consumed by all communal area KW per hour produced by the municipal area - Geothermal - District heating - Electricity (e.g. wind turbines and micro-devices)
Air and Noise	Number of trips in public transports Number of km traveled by public transports Fuel consumption outside public transports (liters)

	<p>Number of complaints recorded for noise</p> <p>Number of complaints recorded for air</p>
Technological and industrial risks	Surface of areas subject to technological and industrial risks (to specify by square kilometer)
Natural risks	<p>Surface of the areas subject to natural hazards (to be specified in square kilometer)</p> <p>Network length of sanitary water</p> <p>rain, dams, storage capacity</p> <p>storm basins and expansion areas.</p>
Environmental management	Number of hours spent to...
Soils and basements management	Surface of contaminated soil
Spatial and land assets management	<p>Surface urbanized per square kilometer</p> <p>Opened area to the immediate area or future urbanization per square kilometer</p> <p>Surface of natural areas</p>

From the author

"Energy savings are potentially caused by installations, but projects are young and no tools are available to estimate, and much less to measure these economies"; "... A Need for monitoring approach and associated tools to produce balance sheets" is required" (cf. external evaluation as part of a call for projects by region - 2010). This quantification seems to regional policy service as the development of a real valued EA, as no income statement is achieved, even less revenue, otherwise aggregated trends and developments.

4.1.5. In terms of data sets from open data, amazing inadequacies

A fifth and final reading of public datasets reveals incomplete tables for several regions since 2010. The fight against climate change and environmental protection resulted in quantitative Indicators of Territorial Sustainable Development (ITSD) that remain global and far from a real accounting analysis. The tables below illustrate that observation.

Table 3. Indicators of Territorial Sustainable Development

Final energy consumption/GDP
Average duration of shuttles home / work
Share of rail and river transport of goods
Share of home work trips by public transport and by car
Evolution of the incoming and outgoing traffic
Share of renewable electricity production / total electricity consumption
GHG emissions
Final energy consumption / GDP
Average duration of shuttles from home to work
Share of rail and river transport of goods in the
Share of home work trips by public transport and by car
Evolution of the incoming and outgoing traffic
Share of renewable electricity production / total electricity consumption
GHG emissions
Final energy consumption by sector (transport, tertiary, residential, agriculture, industry (thousands of oil equivalent tons).

From the author

Table 4. Other physical Indicators (ratios)

Excluding energy water sampling rate in (thousands of cubic meters)
Water sampling rate for agriculture (in thousands of cubic meters)
Water sampling rate for industry (in thousands of cubic meters)
Water sampling rate per 10000 meters agricultural area (in thousands cubic meter per 10000 meters area)

Rate of sampling drinking water per inhabitant(in thousands per inhabitant)
Employment in eco-companies (in number of jobs created)
Amount of aggregates produced (in tons)
Share of organic agriculture / total agricultural area (in percentage)

From the author

These data is a guidance on how to gather information, but at the same time, we find that the concept of environment, even EA is broader than it seems and tends to direct public action to the notion of territorial attractiveness. French regions are working in fact, determining a budget, to display the amount of grants to environmental actions, or the number of markets including "objective criteria for sustainable development", but it is impossible to have an right idea of valuation of all data amount. There is here an opportunity to create a repository of costs. Some regions, in addition, as part of their action plan, highlighted the relevance and limitations of indicators.

Several tracks are possible for the development of an EA based on prices.

4.2. Discussion

4.2.1. Towards a good use of indicators and their representation in monetary value

Such findings lead us to put into perspective the expenditure and revenue in EA system elaborating. For, accounting of environmental expenditures is not sufficient to itself. It should be used to complement with other tools for environmental policy and information of stakeholders : support tools for decision, an observatory of the local environmental situation (Geographic Information System or indicators), monitoring the actions of other actors.

In the action plans, strategic axes actually remain broadly: "the question to follow is"; "measurement indicators (or monitoring) are quantity values', volume (emissions) consumption, in part, by situation, exposed population, area in size, number, distance, number, density, evaluation of the condition, content, number of doses, distribution, movements in progress of plans and procedures. The multiplicity of categories of indicators (of implementation (in number), outcome, impact (outcomes) and financial resources (dedicated regional budget) is interesting but should be better exploited.

In light of the principles of EA, it is not to stand out of the framework of the EA. However, research by the concept of costs is required.

4.2.2. The determination of expenses : a priority to calculate the costs

The main difficulty is the lack of a standard definition of environmental costs. According to the views considered, even in the field of the environment, the costs include disposal costs, routing or study too, or investment, external, research, negotiation costs, etc. Environmental costs include internal and external costs, corresponding to all the costs as related to the protection and environmental damage.

Environmental protection costs consist in the costs of prevention, routing, negotiation, evacuation, forecasting, control and change and repair costs that affect companies and affect governments and people. These are only non-limiting examples.

This method distinguishes different types of expenses: prevention, reduction, control and knowledge of aspects, impacts and environmental risks and evacuation, treatment, hygiene and cleaning (Source: translated excerpts of Environmental Management Accounting : Principles and Procedures, UNDSO 2000).

That process involves several determinants:

- to reconstruct the part of the activity of a service devoted to action with a rate based on the time spent, the number of jobs involved in full time equivalent (FTE) then to count the cost by multiplying the full wage costs (from the real wage if known, the average salary of the position concerned otherwise); That medium is used for the actions on an entire team (e.g. cleaning) or a few people part time employed (time spent on environmental issues in the processing of building permit, for example) ;
- to reconsider the whole costs of an action by adding various charges related thereto : staff costs, overheads, equipment purchases, etc. ; these include calculating expenditures made in-house for an information campaign for the establishment of a charter that requires numerous consultation meetings ; hidden costs are identified in that way ;
- to break down the costs of an operation in order to distribute them into several actions using invoices, budgets, specifications, and memory services, to find the right distribution keys; if no realistic distribution key is found, it is no use separating spending and redefining the action;
- to estimate and approximate expenditure : when it is impossible to collect the data to give figures to the action, one solution is to better approach the expenditure, for example when a provider does not want to give the actual financial flow, expenditure restraint will be the total remuneration of the provider.

An expense is an amount of money disbursed by an actor for the financing of an action in a given period (measured by the annual expenditure is). Cost is a set of expenses prompted by an action on its duration, regardless of the initiator of the expense. This is the total amount corresponding to an action. The following equality relations are therefore necessary if the costs of an action for an actor are equal to the expenditure of the actor for this action, spending all actors for action reflect the total cost of an action.

4.2.3. the determination of income : a necessity

There are specific recipes that can be counted against the following fields taken as examples :

- Drinking water and sanitation : the sale of water withdrawn or pumped from aquifers (individuals, industrial and neighboring towns), taxes, fees, subsidies may be subject to a valuation based on a unit price per cubic meter of water withdrawn ;

- Waste : here taxes, royalties the value of energy sales, the sale of recycled materials, subsidies could be applied ; it is to value the tons of household and industrial waste collected and transported; Many countries have set up a price system per kilo removed (Netherlands);

- Green and natural spaces: the sale of spaces can be done through an access pricing, the sale of by-products (compost) too, whereas now it is distributed free. For this, it is important to take into account the related grants;

- Energy: sale of energy (district heating), energy saving and related subsidies should also be included as income;

- Transport: operating revenues earned through the use of renewable energy must take into account the investment made under these new energies and grants awarded.

In all these cases, we have to consider the allocation of grants from the Water Agencies. If a garbage collection fee exists, treatment of household waste sorting should be accounted also, that must appear on websites and in the accounts of the French regions. The accounting, in addition to fines to polluters, would also be mentioned in the Community accounts.

4.2.4. The dual dimension of environmental action

Before any recognition, it is important to define the scope and nature of the EA : if it is desired as being complete, its extensive dimension must be taken into account instead of its restrictive dimension which would result in an incomplete EA. The inventory of actions and environmental areas should be performed before considering flow accounting, expenses, inventory and revenue.

4.2.5. The reasons to translate flows and stocks into monetary value

It is important to translate flows and stocks into monetary value for the following reasons:

- firstly, the environment is a global problem where micro and macro issues are inextricably linked;
- secondly, as the environmental responsibility increases, the macroeconomic dimension of their accounting extends thus, organizations increasingly tend to develop the technique of life cycle analyzes that have a macroeconomic vocation;
- thirdly, many ideas developed by environmental macroeconomists are applicable to the microeconomic level.

It is traditional in business accounting to distinguish cost accounting (or management) from general accounts. The EA does not escape this partition: so we can talk about general environmental accounting and analytical environmental accounts and this as well at a low or high on the micro or macro level.

Schaltegger and Müller added a third accounting : a tax accounting. But it seems preferable to deal with this type of accounting in connection with the review of assessment types. It should be stressed that even now a "environmental phenomenon" can be treated very differently in the two (or three) accounts.

4.2.6. The necessary valuation of the data identified in amounts

The duality accounting quantity vs. price accounting emanating from the implementation and use of EA applies especially in a context of fiscal restraint. If the physical quantification is a prerequisite for the establishment of an accounting information system, like financial accounting, the time has come to achieve accounting actions, environmental policies and strategies of the French regions. Thus, it is possible to consider (according to Richard, 2013) an EA that uses price systems (where they exist) to value the quantities observed. We can distinguish different price systems :

- Observable prices (possibly) in a market (MP) ;
- Restoration costs (RC) of environmental functions jeopardized ;
- "Hedonic" Prices (HP) awarded by consumer panels to certain environmental functions ;
- Actuarial price (AP) corresponding to the utility (use value) of environmental functions.

It is rare to find market prices and to objectively assign a hedonic value or use of environmental goods. That is why some economists propose to stick to the development of environmental standards, standards to which it will match the costs of environmental restoration functions. In that case, natural capital (and human capital) could be evaluated in terms of restoration costs.

As can be seen the debate on the evaluation that already occupies alongside "traditional" accounting is still sharper and richer in terms of EA.

4.2.7. Towards a concept of "result" in EA

The income statement gives a photograph of management actions; in traditional existing accounts until today, the subject has generally been the holder of finance capital and "its" outcome was defined as net expense products, that is to say net cost compensation other stakeholders. In an internal-external EC type "strong" financial capital which should yield its monopoly on natural capital and human capital, we should logically see the result of concept to expand to accommodate this new situation; the idea that an environmental value (value after taking into account the degradation of natural capital and human capital) would be appropriate is already recognized under certain environmental accounting innovations.

Traditional accounting tools do not provide information tailored to specific needs related to environmental issues. Environmental information is very often found embedded in costs and income aggregates, not allowing to identify the profits and losses inherent in this area. This inefficient allocation of costs complicates the process of decision making.

4.2.8. Towards a valuation control of the environmental financial risk

It seems imperative not to lose sight of the cost-benefit duality, guaranteeing accurate information and a fair share of political and environmental strategies at the regional level, especially when we know that the accounting system has become, for many years, the nervous system of the organization by allowing the collection, analysis and transmission of information of all kinds (Brulotte, 1995). If one takes the example of the management of natural resources, their exploration and exploitation find their own limits and would be likely to expose the French regions and other communities at risk and that should already be measured. So which impacts on the EA ? In that respect, the concept of environmental performance will be reviewed as well as the need for information on targets, on managing enterprise performance devices and approaches targeting the expected results, their effectiveness and compliance.

As a conclusion

We have wanted to understand the construction of managerial practices of the French regions by way of EA. We issued the need to consider it in the French regions from managerial practices, which for the moment have to face management of various indicators from the perspective of the attractiveness of the territories. At the same time, it does not appear that the harmonization process is engaged both in managerial, strategic, organizational, and in terms of the actual environmental action. The disparity of regional approaches, geographical situations and public policies initiated in favor of the environment makes the collection of accounting information still insufficient. The assumptions we issued were based on a dynamic and responsible approach we have developed in the discussion points above.

If the identification of indicators in quantity is a first approach, it could be considered in a second step a price accounting with its different components (expenses, costs, revenues, accounting result) whose purpose is precisely to value actions and to better address environmental challenges in the energy transition. In addition to the targets, activities, products and measures that this approach induces, it is important to consider the different steps from design to the fine management through the development, testing, movement, storage, production, controls, patch management and evaluations. But the matter is complex, as the areas of environmental action are numerous.

This organizational practices could focus then on indicators of integration, consistency, relationship actions that would allow them to have summary data on the implementation and integration of local and sustainable policies the environment. Extensions could be made by working at finer scales such as the service or department. So, working on the negative effects of the action of the Communities on the environment could show the efforts to be undertaken to avoid harming it.

Ultimately, that research highlights the important aspects of the design of EA prices in the French regions in a difficult budgetary context and is likely to generate new paths of thinking. More than a method, it must be a calculation and representation costs too. Also the EA seen under that angle should be a set of collection of techniques and information valuation to calculate and reach a panel of environmental actions essential for accounting management of authorities in a logic of a sustainable development of territories, "of accountability" and budget control.

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