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## The “Sustainable Development Referential” As an Innovative Tool to Pilot and Implement Sustainability Development Strategies in French Higher Education Institutions

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Item Type	Conference proceedings
Authors	Ernult, Joël;Ingham, Marc
Publisher	ISBEE
Rights	With permission of the license/copyright holder
Download date	2026-04-12 16:56:21
Link to Item	<a href="http://hdl.handle.net/20.500.12424/188751">http://hdl.handle.net/20.500.12424/188751</a>

**THE “SUSTAINABLE DEVELOPMENT REFERENTIAL” AS AN INNOVATIVE TOOL  
TO PILOT AND IMPLEMENT SUSTAINABILITY DEVELOPMENT STRATEGIES  
IN FRENCH HIGHER EDUCATION INSTITUTIONS**

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Abstract

The implementation of “Sustainability management systems”, has been viewed as a facilitator (lever) when it comes to developing and integrating sustainability and social responsibility in companies. An increasing number of higher education institutions adopt such systems to support the elaboration and implementation of sustainability strategies in their activities and operations. However, to our knowledge, few researches (if any), have addressed this topic in the context of Higher Education Institutions in France. This paper presents and discusses why and how an innovative tool “the sustainability development referential” has been developed to support these institutions (“Grandes Ecoles” and Universities) in their efforts to implement social responsibility (SR) and sustainable development (SD). More specifically, it traces back the origins and stages (from 2002 to 2012) leading to the establishment of this framework. To conduct this research we applied the methodology of case study analysis. The paper shows that this referential is an innovative tool aiming at helping higher education institutions to (1) Make a diagnosis of their situation regarding SD and SR ; (2) Define SD and SR strategies in line with national policies. (3) Implement an action plan (short term) and structure (mid and long term) their approach of SR and DD. (4) Assess actions; progress and outcomes in SD and SR. (5) Evaluate the possibility to benefit from "labels" and certifications in SD and/or SR. This paper situates at the interface between two principal fields of literature on: (1) Sustainability Management Systems (adapted to address the specificities of higher Education institutions) and (2) the design process ( to identify stages in the development of this innovative tool.) .Emphasis is put on three interdependent questions and dimensions: - the reasons why the innovative framework has been developed – its content (evolutions) - and the underlying processes (how it evolved). This case study shows that the design process follows a trajectory based on the interplay between "internal" and "external" dimensions. “Internal dimensions” cover (1) The number and variety of stakeholders involved in the process (2) The interactions between these actors. The process suggests a progressive transformation of" intermediate” and “boundary” objects which are co- constructed by actors involved . "External" drivers, such as national policies and laws, triggered new stages in the design of the referential; putting pressure on actors to modify its content.

Key words: sustainable development, responsible innovations, management systems, higher education institutions

1. Introduction and background.

Since the early 1990s an increasing number of Higher Education Institutions (HEI) has introduced sustainability and responsibility in their activities; education researches and service to the society (ex. in Business schools, Benn, Dunphy (2009), Sherman, Hansen, (2010), Christensen, Peirce, Hartman, Hoffman, Carrier (2007), Rusinko (2010) or in Faculties of Applied Sciences and Schools of Engineering (Ashford, 2004)). As leaders or key actors in these fields, HEIs are invited to play a central role in the diffusion of sustainability in the society (Bradfield, 2009). To this end, a great number of HEIs have

embarked themselves into strategic and organizational changes and adopted management systems to support these processes.

### 1.1. Moving towards sustainability in Higher Education Institutions: Implications for Strategic and Organizational changes

HEIs are facing the challenges of (re)aligning their governance, strategies, activities, processes and resources to fully integrate sustainability in the short and long term. (Finley, Massey, 2012). Coordination and integration of sustainability in HEIs are not easy tasks. Meeting these challenges offers the opportunity (or necessitates) for these institutions to embark themselves in strategic and organizational change processes (Finley, Massey, 2012). Sustainability in higher education has become a subject of research<sup>1</sup>. The following sections show the diversity of researches on this topic. They cover the analysis of large samples of institutions, international comparisons or specific case studies that have been documented to identify levers and obstacles associated to changes induced by sustainability in HEIs.

#### 1.1.1. Sustainability and changes in HEIs:

In an international comparative analysis of sustainability transformations in seven universities, Ferrer-Balas *et alii.* (2008) outline that “the main barrier to be overcome is the lack of incentive structure for promoting changes at the individual level. The main drivers for changes are –the presence of “connectors” with society – the existence of coordination bodies and projects- the availability of funding. In their study on the University of Guelph (and comparison with initiatives led in others universities), Brinkhurst, Rose, Maurice and Ackerman (2011) suggest that the traditional view regarding the dynamics of organizational change related to sustainability in HEIs, as a top-down or a bottom-up process, neglects the leadership role of the institutional “middle” (faculty and staff) acting as “intrapreneurs” working for social and environmental good from within large institutions”.

Pollock, Horn, Costanza, and Sayre, (2009) wrote “if universities are increasingly aspiring to be both models and catalysts leading to a more sustainable and desirable future, ... complex and ineffective governance, traditional disciplinary boundaries and the lack of shared vision at academic institutions often hinder progress toward this goal. Their case study research shows how, at the University of Vermont, focusing on shared values and long term goals and progress towards leadership in system thinking, ecological design and sustainability can contribute in overcoming these obstacles and in fueling the process. Summarizing their research on the University of Colorado (Boulder), Krizek, Newport, White, Townsend (2012) showed that “sustainability initiatives on campus may evolve through series of phases labeled –grassroots-, executive acceptance of the business case for sustainability- the visionary campus leader- and fully self actualized and integrated campus community.

This brief literature review on the facilitators/levers and obstacles/inhibitors relating to the adoption and development of sustainability initiatives and the change process they would necessitate or induce, led us to further investigate the role and characteristics of sustainability management systems (SMS) as enablers /facilitators in enhancing sustainability and supporting change processes in HEIs. One of the key contributions of SMS is to help reducing (or filling) the gaps that often exist in the strategic alignment and integration of sustainability in organizations.

#### 1.1.2. Strategic planning and alignment of sustainability in HEIs.

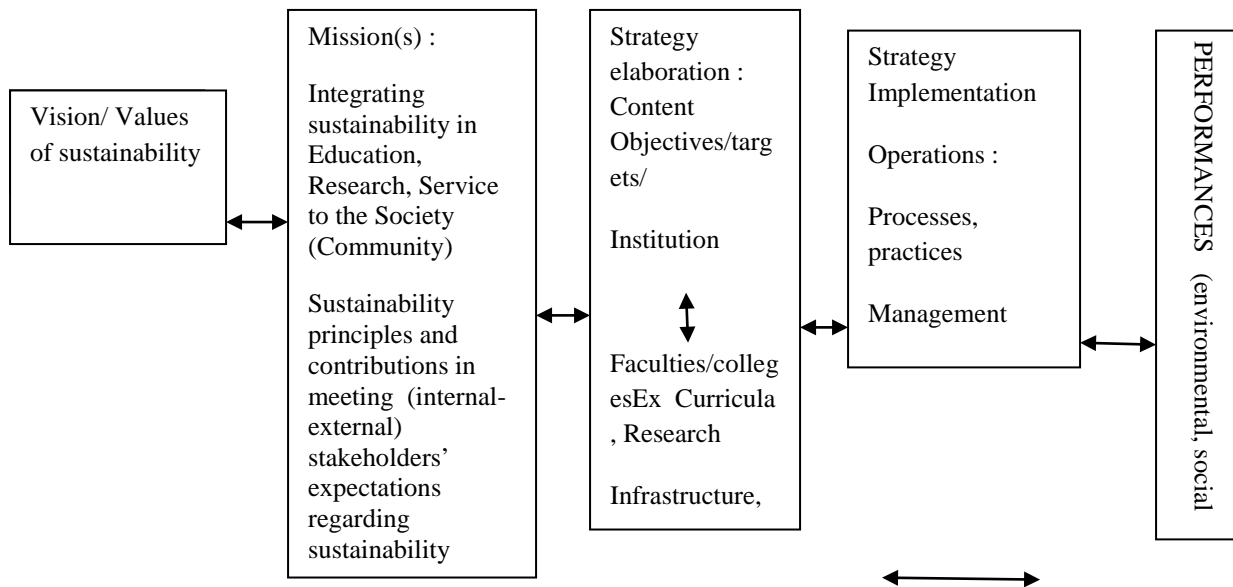
The strategic alignment of sustainability is based on a set of related dimensions. One of the main objectives of Management systems is to help filling the gaps that can exist between these dimensions. Figure 1 briefly sketches these dimensions and gaps<sup>2</sup> as well as the potential contributions of sustainability management systems in filling these “gaps”.

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<sup>1</sup>Articles and special issues in academic journals (ex/ the Academy of Management Learning and Education, 2004, 2010) flourish and specialized journals, such as the International Journal of Sustainability in Higher Education have been created.

<sup>2</sup>We are conscious that this presentation is over-simplified and based on the traditional strategic planning view

Figure:1. Strategic alignment of sustainability: (gaps: ↔)



SMS: Examples drawn from the French Referential : **Governance and strategy** : contributing with internal and external stakeholders in building a sustainable society ‘( balanced economic, environmental. and social concerns)- formalize SD strategies and policies and integrate them in all activities ( Educ, Research and Service, administration) – deploy resources and pilot SD within the institution- - **Teaching and Education**: Integrate SD in curricula, courses,- develop and support (Students’, Professors, Staff ) SD competences and initiatives- **Research**: promote and value interdisciplinary research on SD at the local/national and international levels/ Relate SD research and teaching/- **Environmental Management**: Reduce gas emission, non renewable energy and material consumption/ develop pollution prevention ‘policies/ protect biodiversity/ waste management -recycling)/ green campuses ( including infrastructures) – **Social policy**:/Personnel: parity/diversity/quality of life/ - Students: quality of life (health),/ social policy/ ) **Local anchorage**:/involvement, commitment and leadership in local SD initiatives.

## 1.2. Characteristics and roles of Management Systems as tools to support the strategic alignment of sustainability.

This section briefly presents and discusses the characteristics and the roles of systems that can be put in place to elaborate and implement sustainability in HEIs and support its strategic alignment. An increasing number of institutions (as it is the case for companies) publish sustainability reports, profess their engagement (ex: professed sustainability Vision, values and mission) and present their initiatives in this field. This can be viewed as a signal and a first step towards sustainability. However, there can be huge gaps between what is professed and what is actually done (figure 1). One of the key issues is to reduce (fill) gaps thanks to the adoption of integrated Sustainability Management Systems.

### 1.2.1. From Reports.

Like companies, more and more HEI put in place policies and processes to improve their environmental performances such as the reduction of gas emissions, waste (energy, material, etc.) (Atherton, Giurco, 2011), develop “green campuses” or “eco campuses” (Finlay, Massey, 2012). An increasing number of HEIs publish sustainability reports. However, these reports greatly differ in terms of scope, topics addressed, dimensions and criteria that are used to report sustainability initiatives.

In their research on the state of sustainability reporting (from 2006-2008) at (25 largest) Canadian universities, Fonseca, Macdonald, Dandy, Valenti, 2011), (using 56 indicators based on the Global Reporting Initiative guidelines) investigate “who is reporting, how information has been reported, and what is being reported”. The study shows that “sustainability reporting is an uncommon and diverse practice”...“Primarily under the coordination of sustainability offices or students, seven universities published sustainability reports, primarily under the coordination of sustainability offices or students”. The authors conclude the summary of their findings stating that “While all reports shared a non-integrated indicators framework, a variety of approaches were used in the selection of indicators. Reports generally had limited scopes emphasizing eco-efficiency. The potential value of current documents as a tool to inform sustainability-oriented decisions is limited” (excerpts from abstract).

#### 1.2.2. To integrated Management Systems

The adoption of environmental (quality) management systems (EMS) has been viewed as a facilitator (lever) when it comes to developing sustainability and social responsibility in companies (e.g. Delmas & Montes-Sancho, 2011, Schylander & Martinuzzi, 2006 for literature reviews). Similarly, HEIs adopt such EMS to implement and control sustainability strategies in their activities, practices, processes, infrastructures and governance. It has been argued that, due to their characteristics, HIE would provide a context which would facilitate or hinder the implementation of EMS.

In their research on environmental management systems in universities, Peris Mora and Martin (1998) identified some of these characteristics (compared to industrial companies) ( pp 138-139): – (1) *environmental effects* (contamination) *and flows*: effects are of a low magnitude, not continuous but may have some levels of risks (ex: laboratories) while “material” flows are mainly related to consumption (energy and material savings/reduction) and limited production of waste (including recycling). Information and education/training should be interpreted principally as (human) flow with positive effects; universities receive students as a principal “raw material flow” and, subsequently “produces” professional experts (i.e the sum of student/education/training (p.139) - (2) the *organizational context*: (depending on their size, number of campuses (sites), culture, etc.) Universities often have complex organizational structures: in most cases their organizational designs are neither functional nor purely divisional – hierarchy (and power) depends on the educational systems (private, public /state) and traditions, etc. - (3) the *distribution of responsibilities* (*staff, management communication*) – communication and involvement in sustainability would be facilitated, (communities- orientation towards ethics) but, on the other hand, groups of participants (ex: teachers- researches) may be reluctant (chair freedom, independence ) regarding standardized control systems). As a consequence, EMS (like EMAS) and quality standards (ISO) that have been primarily designed for (industrial) companies have to be adapted to the characteristics (specificities) of HEIs.

This brief literature review shows the existence of different types of sustainability assessment tools as well as different stages in their adoption by HEIs.

### 1.3. Stages in the adoption of Sustainability Management Systems in Higher Education Institutions.

This section briefly presents and discusses stages in the development and implementation of Sustainable Management systems in HEIs. These stages range from “awareness regarding the importance of sustainability to the “full” integration of sustainability.

#### 1.3.1. Increasing shared awareness regarding sustainability.

A first step consists in increasing the awareness regarding the challenges associated to sustainability. Many individual and collective initiatives have been taken to increase this awareness and it may be argued that higher education institutions are (due to the characteristics presented in the previous section) receptive to sustainability.

Besides the general principles regarding sustainability as they have been defined by the UN, The European Union and States, an increasing number of actors (Ministries and associations (ex: the American College and University Presidents Commitment on Climate Change (ACUPCC) in the USA, Copernicus-Campus in the Europe<sup>3</sup>, etc.) contribute, through their integrated actions, in promoting sustainability and to provide HEIs with general guidelines (and checklists) to facilitate the elaboration and implementation of their sustainable development' strategies. Many universities publish reports to relate the implementation of these principles and guidelines (ex. in the USA and in the European Union) A research (Swearing White, 2009) on the early participation of universities in the ACUPCC (period December 2006-September 2007) aimed at identifying "what types of campuses (ex size, location, type of activities) might be the most likely to be climate change innovators". Drawing on the literature on organizational change, learning and innovation diffusion, this research led to the conclusion that "there is no typical signatory among the 379 charter members". Many types of institutions, public and private, small and large, located throughout the US have pledged to become climate neutral through this commitment". The increasing number and variety of European HEIs which joined Copernicus-campus, national and international networks show a similar trend. However some possible gaps between the professed principles and the actual practices can be identified. (Christensen, Thrane, Herreborg, Jørgensen, 2009) It must be stressed that direct (internal-external) and indirect stakeholders (Students, faculty-researchers-administrative staff, board members, local community, etc...) contribute in fostering this awareness among HEIs.

All these "pressures" or "incentives" increase the awareness and the shared consciousness about the opportunities and the need to (re)define and integrate sustainability strategies at the organizational level and to get the HEIs ready for change.

### 1.3.2. Activation: "getting the organization ready".

A second stage consists in activating the change process, in the move towards sustainability. This covers (at least) two interrelated steps: auditing the existing situation regarding SD and the elaboration of the sustainability strategy (setting a vision of sustainability, incorporating sustainability at the very center of the institution's missions (teaching/education, research and service to the society), defining (sustainability) objectives and targets, policies and priorities ). The central issues to be addressed must embrace the three central missions (Education, Research and Service to the Society) but also the central core) processes (planning, administration, control) and human resource development (ex: Copernicus guidelines). HEIs are invited to conduct internal analysis and sustainability audits and to get the organization ready to prepare the ground to moving towards this stage.

Examples of these initiatives aiming at supporting change and preparing HEIs for sustainability audit can be found in the literature. Many "auditing tools" have been developed to help HEIs to perform these tasks. They range from auditing sustainability in specific fields (like sustainability in education curricula, research, environmental performances in energy use, etc.) to general and integrated audit. The validity of such tools has been evaluated. Such is the case of the STAUNCH©<sup>4</sup> (Sustainability Tool for Auditing for University Curricula in Higher-Education) in the Welsh Higher Education (Glover, Peters and Haslett, 2011). Summarizing their findings, the authors outline, (as positive aspects) that: "The audit enabled curriculum managers to identify programs of study which exhibited strengths and limitations in this area. Utilizing a common auditing tool across the Welsh higher education sector allows for future developments to be collective and collaborative "(source: drawn from abstract).

A research led on Brock University - Canada, (Mitchell, 2011) shows that: - smaller and mid-sized campuses can successfully move forward with sustainability initiatives thanks to cross professional and disciplinary synergistic partnerships – inductive methodologies should not be overlooked in this process-

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<sup>3</sup>Copernicus Campus is responsible for the University Charter for Sustainable Development, . COPERNICUS was launched by CRE , the predecessor of the European Universities Association EUA, in 1988.it is an independent organization with a close link to EUA. The target is to involve committed European universities to share the knowledge and expertise in the field of sustainable development. (source UNESCO retrieved from internet, May 2012))

<sup>4</sup>STAUNCH© is an assessment tool which has been developed to allow higher education institutions to measure their contributions to teaching from a sustainable development perspective. ( source STAUNCH Web site, retrieved from internet May 2012)

leading edge environmental initiatives (realized or planned) act as driving forces. ” the absence of any systemic, coordinated and comprehensive approach was the main negative finding” (source: drawn from abstract).

### 1.3.3. Defining clear targets (metric) for auditing sustainability.

Auditing sustainability necessitates both a clear definition of targets and criteria that will be used as well as the participation of key stakeholders in the process. Depending on their characteristics and priorities, HEIs conduct internal analysis and audit based on different sets of sustainability dimensions, targets and criteria. (ex: from specific environmental issues to “green campuses”, from environmental to societal (environmental/social dimensions). A first issue is to set (long, mid and short term) objectives and targets. These objectives can be qualitative, and/or quantitative. However, in order to serve as a basis for the development of EMS, and to enable assessing the outcomes and progress made in the quest for sustainability, these targets must be (as much as possible) measurable.

Summarizing their findings on target and metrics strategies led in colleges and universities, Rauch and Newman (2009) state that “While quantitative targets may be set for sustainability metrics, these are often long-term ideals that offer no information on the path to achieve them. If a path to achieving these targets is outlined, it is often arbitrary quantitatively, if not also qualitatively” (Excerpt from abstract)

A very common approach consists in defining targets and metrics relating to environmental issues like climate change (ex: gas emissions) , energy and material ( consumption, waste management, recycling), or the protection of the biosphere. Examples of such initiatives abound. In a case study on the design of a strategy regarding campus climate change, transport and paper reduction at an Australian university, Atherton and Giurco (2011) stress “how to engage with staff and students to develop shared aspiration and how to reflect these in tangible objectives, targets and actions. These objectives and targets cover (e.g.) – reduce emissions by 11% (by 2012/2013), -double the staff/students commuting trips by walking and cycling to 35% by 2011- paper reduction (decrease paper purchase by 20% and increase recycled paper use up to 30%. The authors also insist on the evolutions in the organizational structure that are needed to implement these strategies.

The establishment of metric target strategy in HEIs is a difficult task. HEIs have to develop different strategies, depending on their characteristics (nature and scope of the activities, (ex: small and or specialized versus large/ multi-disciplinary institutions (universities) number (and diversity) of locations (campuses), etc.). As a consequence, targets and metrics must be at the same time, sufficiently standardized but adaptable (flexible). Standardization enables to assess (internally) progress in different settings, (ex faculties, locations), and to integrate sustainability at the organizational level but also to conduct comparisons among HEIs , while flexibility is necessary to take into account the specificities of each institution and its constituents.

The characteristics of such strategies have been identified. Rauch and Newman (2009) found that *“sustainability metric targets can be founded upon clearly delineated, rigorously quantified targets. At the same time, the process framework for developing sustainability metric targets is adaptable to the unique situation of a particular university. This adaptable metric target strategy reflects the ideals of sustainability to be at one time both local and global in scope. The metric target strategy is globally applicable, but the sustainability metric targets produced will be unique to each institution.”* (Excerpt drawn from abstract)

HEIs can also adopt different methods and tools as part of their SMS to support the process of data collection. The use of software is expanding in large institutions and the characteristics of such “automated” systems have been identified. Once again, it has been argued that these automated systems should be both standardized and flexible and that their design and implementation in large institutions must enable, as mentioned above, to take into account specificities. Summarizing their research Bero, Doerry, Middleton, and Meinhardt, (2012), state that - *“the development of automated EMS systems for large institutions is significantly complicated by profound heterogeneity in campus infrastructure, management policies, and limited data accessibility; legacy data are often incomplete or inaccurate”*. According to these authors: *“Successful EMS initiatives must explicitly address these challenges through realistic project planning, choice of software technologies, design of system architecture, and administrative commitment.*

The definition of such objectives/targets, their associated metrics and project planning are important steps toward the development and adoption of integrated SMS in HEIs. But it is not enough. Other challenges must be met to proactively integrate sustainability strategies in HIEs.

#### 1.3.4. Towards integrated “Sustainability Management Systems” in Higher Education Institutions: challenges and “solutions”.

In his review of 11 cross- institutional assessment tools for sustainability in higher education, Shriberg (2002) presents the benefits associated to these tools-“identifying and benchmarking leaders and best practices- communicating common goals, experiences and methods- provide a directional tool to measure progress toward the concept of a “sustainable campus”. The author states (in the abstract of his article) that “ideal” assessment tools “ -identify the most important attributes of a sustainability campus- are comparable and measurable- measure more than eco-efficiency- assess processes and motivation and –are comprehensible to multiple stakeholders”. Drawing conclusions of his analysis, Shriberg (2002) states that they structure and content converge on the following parameters (p.267) - *Decrease throughput*: all tools reflect the need to decrease usage of energy and other materials and inputs. – *incremental and systemic progress*: incremental ( short term oriented) progress in eco-efficiency, and more systemic change ( second stage – mid -long term) :incentives reward structure, mission and goals statements- , procedures- annual reports,...- *sustainability education as a core function*: sustainability integrated into curricula and courses in different disciplines (active learning)- *cross functional reach* ( education, research, administration, infrastructure design,...) – *cross institutional action* : this covers cross campus comparisons, and the transfer of best practices.

This brief literature review aimed at identifying (1) the challenges of sustainability for HEIs, - (2) Their implications in terms of strategic alignment, integration and organizational change . (3) Sustainability Management Systems’ roles in this alignment as well as their characteristics. We draw the conclusion that, in order to help HEIs moving toward an integrated sustainability, such systems should be 1.– general (broad) enough to embrace central SD dimensions (environmental–social) to cover central activities (teaching &education, research, service to the society) and to assess different degrees of SD integration - standardized enough to facilitate and enable comparisons: external (between institutions) and internal (between their constituents: faculties, administration functions), - flexible enough to be adaptable to the characteristics of these institutions ( size, scope of activities, number of faculties, campuses,...). Such are the objectives of the” sustainable development referential” that has been developed in France.

#### 1.4. Research issues and questions

We found interesting to trace back and to analyze key stages in the development and evolution of this innovative tool for the following reasons. From a theoretical/conceptual point of view, this analysis could help - to better understand how different “stakeholders” intervene in the collective design (process) and how the “tool” itself evolved (content). – to identify the role of contextual “ external” factors ( and pressures) on both process and content..From a more practical perspective, this analysis would provide insights on the key dimensions, levers and obstacles that would speed up or hinder the development of these tools by HEIs . As a consequence the research questions addressed in this paper are the following. What are the key stages that marked evolutions in the design of the sustainability referential and what were the associated change drivers (levers and obstacles)? Who were the principal actors (stakeholders) involved (interests and engagement) and how did their interactions impacted this evolution?

#### 2. Methodology.

We applied the principles and methodology of case study research. (Yin,1984). It is important to stress that one of the authors (A) of this paper was (and is still) involved in the project since its origin as a

coordinator of the project teams<sup>5</sup>. From a methodological point of view, this can be viewed as an advantage (first-hand informant who has been involved at each stage of the life cycle of the project) but also as an inconvenient (risk of bias in the interpretation). For these reasons we made the decision to organize our cooperation as follow. B acted as an “interviewer” and was primarily involved in – conducting a desk research (literature review, secondary data on the project published on internet (reports, newsletters, etc.) and asking A to trace back the evolution of the project (open and semi structured interviews) and to further document the case. (collecting and structuring a great amount of secondary data). This led to a descriptive chronological presentation of the case (time line) –The second step consisted in identifying evolutions in the external and internal contexts and their impacts on the project (content and process): evolutions regarding the content of the referential, involvement of new stakeholders in the design process (teams,...) This enabled to identify “key stages” which marked the evolution in the design (content- process) and their characteristics... This part has been performed as follows: data collection (Collecting and structuring a great amount of secondary data (A).and interview (B interviewer and A respondent). Data interpretation led the two authors to engage in an “open “dialogue, (based on a comparison of their analysis and perceptions) leading to a consensus regarding the findings which emerged from this analysis. Similarities with researches on “intermediate” and “boundary” objects and “community of “ arose rapidly ( during the early open discussions when writing the paper proposal) and invited us to further investigate this stream of literature (Vinck, 1999, 2009) in future researches . This intuition was confirmed in the course of the analysis and reinforced when conducting the literature review on sustainability change and learning in Higher Education Institutions (Benn and Martin, 2010).

### 3. The Context of the Study.

Higher Education in France cover two main categories of institutions; universities (most of them are state universities) and the “Grandes Ecoles” (the great majority of them are Ecoles de Commerce (Business Schools) or Ecoles d’Ingénieurs (Schools of Engineering). In France, two associations, represent these higher education institutions: the Conférence des Présidents d’Université (CPU) and the “ Conférence des Grandes Ecoles (CGE). These associations played a central role in the design and development of the “National Referential: Green Plan”, the last version of which that has been set up and made available for French HEIs in 2012. This section presents the last version of this referential (3.1.) as well as the main stages which have marked its evolution (3.2).

#### 3.1. The referential “Green Plan” (2012)

The final version of the referential “Green Plan” has been published in January 2012. This innovative tool aims at helping HEIs to implement the article 55 of the Law “Grenelle 1” (august 2009). Article 55, states that all HEIs have to set up an approach of sustainable development (in its economic, social and environmental dimensions) and implement initiatives in this field. The referential “Green plan”, is part of the “Green Plan for the French Higher Education Institutions” (made official in June 2010) with the Green Plan Canvas which integrated the challenges of the National Strategy for Sustainable Development 2010-2013<sup>6</sup> and -2. This referential (elaborated by the CGE, the CPU and their stakeholders) aims at helping HEIs to implement this Green Plan, following the logic and process of continuous improvements.). This referential is also designed to be used as: a pedagogical tool in Sustainable development and Social Responsibility, - a tool to communicate and share “good practices” - a guide for the elaboration and implementation of sustainability strategies (objectives for continuous improvements 1;3;5 years- priorities, etc.) that are coherent and in line with the objectives of the Canvas Green Plan and the ISO 26000,- a tool to perform the sustainability “auto-diagnosis” ( strengths-weaknesses, ... ), a table enabling to follow up the implementation at the operational levels and - a basis for accreditation “ (sustainability label).

The Referential 2012 is organized (structured) along five axis: - strategy and governance- education-research- environment - social policy and local (territorial) anchoring –. It contains 62variables: 18“strategic” (which are “stable” in time and relate to important issues) (3 to 5 per axis) and 44

<sup>5</sup>A is involved in the project since 2006, (as a CGE’ team member and as a team leader/(pilot ( since 2009)

<sup>6</sup>The objective is to meet and integrate the challenges defined in the EU’ sustainable development strategy) into the national strategy.

(corresponding) “operational” ones. These operational variables are “dynamic” in the sense that they are action- oriented and defined in a context that may evolve. (ex: evolutions in the national strategy). Strategic variables have to be documented by the Head of establishment while the sustainable development “referent” appointed in each entity is expected to document the operational variables ( which can be different depending on the situation/specificities of each constituent entity (site)). This last version of the referential identifies five levels of performance (assessment) and continuous improvements (with a central level (level 3) that represents the compliance to -legislations, the objectives of the “Green Plan Canvas”- or “good practices” ( when and where the two previous ones do not apply).

Table 1: levels of sustainability performance (assessment and continuous improvements)

Level 1	Level 2	Level 3	Level 4	Level 5
Awareness	Initiation	<b>Conformity</b>	Mastery	Excellence
Awareness regarding sustainable development (SD) Ongoing reflections Absence of formalization of the "Green plan"	Diagnosis of the present situation regarding SD First stages towards compliance with legislation Partial measures of performance, some punctual actions	Conformity with legislation including the "green plan" and code of good practices in SD Formalization. Evaluation of actions undertaken	Continuous improvement processes in place. Early stages in innovation Efficiency	Excellence. Innovation. Excellence evaluated and recognized by Peers Sustainability « Labels »

### 3.2. Designing the referential as an innovative tool: evolutions and “revolutions”.

This section traces back the origins (2002-2006) and presents key stages in the evolution of the Referential from 2006 to 2012. It focuses on – its content (dimensions and associated variables- central actors (stakeholders) involved, - team’ members in charge of its design – external drivers.

#### 3.2.1. Foundations (2002-2006).

Conscious of the SD challenges and the central role the Grandes Ecoles have to play in educating responsible decision makers, the CGE (Conférence des Grandes Ecoles) made the decision, in 2002 to create a “think tank” in charge of elaborating a reference document that would express the CGE’s involvement and engagement in the field of sustainable development.

In March 2003, this “think tank” ( made of delegates from about 10 Schools) produced a document that became the “*Charte de la Conférence des Grandes Ecoles pour le Développement Durable*” ( CGE’s Charter for Sustainable Development). This document presents the principal SD challenges and proposes ambitious sustainable development and social responsibility objectives for its members. This Charter directly inspired future works. In 2004, the CGE Board of directors, asked the same “think tank” to write a chapter dedicated to sustainable development to be included in the “Strategic White Book – 2004-2008) in progress. This chapter was finally included as an appendix. However, conscious of the importance of this subject, a decision was made to organize the annual Congress 2006 (due to be held in Brest) on this theme. To this end, new members joined the initial think tank to create the Conference 2006’ program committee. The objective was to set up a program with the aims to – increase members’ awareness regarding sustainability challenges, to insist on the Schools’ responsibilities in this field and to invite the members to make a proactive commitment and take initiatives in sustainable development. This congress, hold in Brest offered the opportunity to sign the UN Global Compact. To respond to this commitment, a decision was taken to set up, in January 2007, a “Sustainable development” team. The

mission assigned to the team covered – the identification of “good practices” in France and abroad - the elaboration of a “referential guide” on sustainable development and social responsibility (global responsibility)

### 3.2.2. The referential: key stages of evolutions (2007-2012)

The evolution of the referential (roughly) covers three principal periods. The first one (2007-2009) consisted in designing and developing the CGE’s referential guide. The second one (2009-2010) was marked by the design and development of the CGE-CPU common referential “Green Plan” through the cooperation between the two associations. The third period consisted in redesigning a totally new Green Plan Referential. Table 2 presents a set of characteristics corresponding to each stage: design: content, actors involved, and internal/external factors.

**(Insert Table 2 about here)**

### 3.2.3. Design and content.

This section briefly describes evolutions in the referential design and content. Emphasis is put on the evolutions regarding the sustainability dimensions, items and criteria as well as changes in the referential structure.

#### 3.2.3.1. The CGE Referential Guide (2007-2009)

It is important to stress that this guide, (that has been developed by about 20 members representative of their institutions, and in relations with “Graines de changement”) is structured along the axis defined in the CGE’s Charter for Sustainable Development adopted in 2003. Its objective is to invite members; on a voluntary basis, to produce yearly documented reports enabling the CGE to consolidate data and publish its Global Responsibility Report, and to provide these institutions with a tool that enables them to compare their situation with these consolidated data. As mentioned above, this tool is primarily designed to help institutions - to make a diagnosis of their situation, to assess and follow-up their actions ( progress, indicators) – define their sustainability strategies in line with their policies, through a process of continuous improvement and progress. – to engage in dialogues with their stakeholders and share good practices- and possibly ( in the near future) to obtain sustainability labels.

About 10 team members (among the 20), all involved in sustainable development in their institution, have been very active at this stage. They cooperated under the leadership of a renowned expert in sustainable development for higher education institutions, who participated in previous stages, like the development of the SD Charter and White Book which inspired and oriented team work. Meetings (about 1 meeting hold every two months) were organized at the initiative of the team leader who set the schedules and the agenda. Delegates from Business Schools and Schools of Engineering and Sciences provided the team with complementary views and insights.

A set of levers that contributed in performing tasks and to rapidly come out with the referential guide can be identified: - the leader’s role- the relatively small number of participants, all in charge of SD and working in similar institutions ( ‘Grandes Ecoles’ model). “Graines de changements” participated in the process as an “observer” rather than as a key actors, to support the development of its project “responsible campus” (source secondary data and interview A)

#### *Content*

The referential guide (version 1) contained 1. - the definition of five strategic axis presented as follows (Commitment- governance – Social policy and local ( territorial) anchorage- Initial and continuous education- Research- Ecological management of the campus. (2) 35 items describing the sustainability challenges and objectives (in terms of actions to be implemented) for each entity. – 3. Four levels of performances in order to help the institution to position itself on each challenge and objective, taking into account its progress – 4. The objectives for the current year as well as a description of actions that have been undertaken to achieve them. - 5. The objectives of the entity to be achieved within 1-3-5 years

(dynamic approach). This referential guide was available for CGE's member school in July 2007. It has been tested twice: in 2008 (15 schools documented it) and in 2009 (27 schools documented it).

### 3.2.3.2. The Sustainable Development Referential – Green Plan (2009/2010)

The cooperation between CGE and CPU was set up after the publication of the Grenelle 1 law project, and more precisely its art 55 stating that Higher Education Institutions will elaborate a "Green Plan" for their campuses. The CGE's working group has been opened and extended to interested stakeholders, such as the CPU's sustainable development commission, the REFEDD, as well as Ministries (Higher Education and Research, -Ecology, Energy, Sustainable development and Sea,...). Others stakeholders have been associated (like the Commissariat Général au Développement Durable<sup>7</sup>, the "Réseau Campus Responsables"<sup>7</sup>, (Responsible Campus network), Fondaterra<sup>8</sup> and the student association "Solar Generation", ...). All these organizations have worked on the basis of the CGE's Referential Guide and collaborated in the design and development of the "Sustainable development Referential" of the "Green Plan of Higher Education Institutions" This new referential apply to all higher education institutions ( Grandes Ecoles and Universities) and its implementation is compulsory since the vote of the "Grenelle 1" Law (of the 3d of August 2009).

Following the obligation (article 55 law Grenelle 1) for all HEIs to put in place a SD policy, the CGE (which had elaborated and tested its own referential) invited the CPU to work on this basis to elaborate the new common referential "Green Plan". Two groups (one for the CGE and one for the CPU) worked separately with one person (who is member of both CGE and CPU) acting as a "liaison-agent" between these teams. It is worth noting here that about 50% ( 4-5 ) of the CGE group members created in March 2010 with the objective of re-design a totally new referential participated in the previous team (2007-2009). New members were appointed after contacts A made during the annual R2D2 meeting held in Lyon in May 2010. ( see section 3.2.3.3.)

Relationships between both groups rapidly became "political". While the CGE started ( since October 2009) sending to its member schools the referential to be completed by July 2010, most of the universities' delegates apparently were not aware that their institutions were also requested to fill and document the referential by a "deadline". In December 2010, 70 GE and only a few universities had documented the referential. The great majority of universities just started the process and others were still wondering "what has to be done ..." This is the reason why a decision was made (in January 2011) to organize a joint group, common to the CGE and CPU with (among others) the objective -to reduce the number of items and to –re-balance the strategic axis (domains) (source: interview A.) This led to a transformation and a restructuring of the Referential in 2010-2011 (cfr. section 3.2.3.3.)

#### *Content (evolutions)*

The new referential is based on the previous CGE referential guide. It keeps the 5 strategic axis ( domains) which are slightly modified ( names and order of presentation) – Strategy and governance- Social policy and territorial anchorage- Environmental management - Teaching and Education - Research activities - as well as the four levels of performances/assessments/ improvements.

It introduces 96 items describing the sustainable development objectives and actions (to be) performed in each institution. A correspondence was established between these items and the 9 challenges of the Preen plan – These indicators as well as the list of documents attesting actions undertaken for each level of performance (as they are assessed and declared). It is important to stress that the objectives at 1-3-5 years have been skipped from this referential.

It must also be stressed here that this increase in the number of items is notably due to the inclusion of new members from universities. This led to the addition of (a lot of) new items or (more specifically environmental items). This number also increased to take into account the context and specificities of universities (number and variety of faculties, research laboratories, ( ex chemistry lab using toxic materials, etc...) that are very different from those of Grandes Ecoles ( Business and/or Engineering Schools) . The increasing number of stakeholders which were directly involved in the process, more specifically the Ministry in charge of Ecology and the "Commissariat General au Développement Durable,

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<sup>7</sup>Network of French Grandes Ecoles and Universities committed to sustainable development

<sup>8</sup>Fondation Européenne pour des Territoires Durables. ( European Foundation for Sustainable territories)

sometimes created different interpretations (e.g.) regarding the challenges and objectives of the canvas “Green Plan”.

### 3.2.3.3. Re-designing the referential. (2010-2011)

The analysis of the test of the referential (documented by 70 Grandes Ecoles from October 2009 to July 2010) and feedback from the respondents led the CGE’s Sustainable Development Commission (in March 2010) to profoundly modify the referential to better meet the members’ needs and contexts. A new working group, gathering together 8 members (from 8 Grandes Ecoles) was set up and started working on the new revisited referential in July 2010. The 8 CGE’s delegates participated in the CGE’s team since 2009.

Lessons drawn from the analysis ( by CGE’s team leader (A.) led to conclude that the previous referential was – (1) too long ( to many items (96) (often too precise and/or technical) and too” heavy” (even discouraging) to be properly documented.- (2) “un balanced”: lack of balance between strategic axis: Strategy and governance (14.7% of items) – Social Policy and local anchorage (28.5%), Environmental management (44.7%), Teaching and Education (7.4%) and Research activities (5.3%). This shows an “hypertrophy” of environmental issues while central dimensions of HEIs’ missions; education and research are very limited. The analysis showed that (3) it is difficult for respondents to make a clear distinction between the levels (degrees) of progress/performance - (4) Lack of clarity in the distinction made between “strategic” and “operational” items. (5) Difficult to document the referential for multi-sites institutions.

This analysis conducted by the CGE’s team leader ( A) has been discussed within the GE team been and presented and commented in meetings with delegates from the CPU and stakeholders (from July to December 2010) and during the annual meeting hold in Lyon ( May 2010) .

In September 2010, all the members of the CGE team were convinced of the necessity to - re-balance strategic axis- reduce the number of items- replace the former items related to the strategic axis (domains) by a new set of strategic variables which are in turn translated into a set of (corresponding) operational variables. - to introduce a fifth level of performance , as it is the case for SD 21000 and ISO 26000 standards.

In January 2011, the CGE and the CPU made the decision to create the “Sustainable development” working team, common to both organizations with the mission to completely review and redesign the former referential and to come out with a new and final one. The team is made of the 8 members of the previous CGE team created in 2010 and 16 members (representing 11 universities) who progressively joined it. In order to speed up the process and to meet the deadlines, the team made the decision not to involve “external” stakeholders as permanent members but to consult them, as “ad hoc” external experts. It is worth noting here that this new group was made of CGE’s delegates who participated in the previous period (s).

*Content: ((r)evolutions.)*

This common working team has firstly confirmed the five strategic axis (domains). However, their order (of presentation) has been modified, placing Teaching- Education and Research at the second and third positions respectively. The team also defined 5 levels of performances, built around a central level (level 3) corresponding to the conformity with (compliance to) laws and regulations and the objectives of the National strategy for sustainable development “Green Plan”. (cfr section 3.1). Then the team has been split into five sub-groups, each being in charge of redesigning one strategic axis<sup>9</sup>. This covers – the identification of the strategic (from 3 to a maximum of 5) and operational variables with the objective of reducing their total number. (about 60 ) – a (non exhaustive) list of indicators and requested documents corresponding to each variable. This led to the publication of the final version presented in section 3.1. French Higher Education Institutions are requested to document this referential by the end of July 2012<sup>10</sup>.

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<sup>9</sup> Governance and strategy : 6 members ( 2 GE, 4 university)- Teaching/education: 8 members ( 3 GE, 5 university) –Research : 7 members (3 GE-4 university- Environment: 5 members (2 GE-3 universities) Social policies and local anchorage: 6 members ( 3 GE and 3 University) It must be stressed that 3 members from GE participated in several sub groups ( 2 or 3 (A))

<sup>10</sup>The format of the referential is an Excel file/table that has been made available for all French HEIs ( Grandes Ecoles and Universities)

#### 4. Discussion and conclusions

Even if it is too early to draw conclusions from this research in progress, some lessons can be learned from our analysis. The objectives of this research (based on our literature review) were the following – What are the key stages that marked evolutions in the design of the sustainability referential to support the strategic alignment of sustainable development in Higher education Institutions?- What are their characteristics? Who were the principal actors (stakeholders) involved (interests and engagement) and how did their interactions impacted this evolution (levers/obstacles)?

Our investigation did not allowed us to (provisionally) deal with (and to provide answers to) all these questions. However, our analysis suggests that - a set of dimensions/factors can contribute to a better understanding of central issues that have been presented and discussed in the literature: The necessity to develop “Sustainable Management Tools” that are adapted to the characteristics of Higher Education Institutions and which enable them to integrate (align) sustainability in their vision, mission, strategies and operations. This pleads in favor of (and calls for) designing and developing innovative “Sustainable Management Systems (Tools)” that are 1. General (broad) enough to -embrace central SD dimensions (environmental–social-economical) and to cover HEIs’ missions and central activities: teaching & education, research, service to the society,- in the short, mid and long terms and to assess different degrees of SD’ integration – 2. Standardized enough to facilitate and enable comparisons: “externally” (between institutions) and “internally” (between their constituents: faculties, administration, functions), - 3. Flexible enough to be adaptable to the characteristics of these institutions (size, scope of activities (number (diversity) of faculties, campuses,...)).

We found interesting to further investigate initiatives led in France to develop such a “Sustainable Management System” that has been designed with the aim to supporting HEIs in their SD’ efforts and initiatives . To our knowledge, there is (still) a lack of understanding of how such enabling tools can be developed to meet these challenges and help HEIs to embark themselves in strategic and organizational changes towards sustainability. As it has been stressed, (section 1.4.) the aim of our study was to focus on the evolutions in the design and development of this innovative tool and to identify periods of (r)evolutions (relating processes and content ) as well as their characteristics. A second objective was to identify stakeholders’ involvement (number and variety) their interactions as well as their influences/impacts on the referential content.

The chronological (cross-stages) analysis shows that the architectures (design /structure/content) of the successive versions of the referential are characterized by both “relatively permanent” and “dynamic” dimensions. Permanent dimensions relate to the strategic axis (domains) which have been identified and defined since its origins, even if their “order” changed in time. Dynamic dimensions cover the number and variety of variables and items that have been introduced, modified or suppressed at each major stage that marked (r)evolutions in the referential. The analysis also indicates the interplay between stability and change in teams’ membership. It is worth stressing here that the CGE teams played a central role along the whole process (cross-stage) and that about 50% of CGE team’s members have been involved at several stages. This contributed to creating “stability” in both the design process and content. Major changes in the design (architecture: structure and content) were triggered by changes in the “external” and “internal” contexts in which the project evolved. Major changes arose from the necessity and obligation to integrate the objectives of the National Strategy for Sustainable Development, the “Green Plan” canvas and to comply with the article 55 of the “Grenelle 1’ law”. The chronological view also indicates an evolution in the number and variety of key actors and “external” stakeholders involved in the processes. Key actors, specifically the delegates from the CPU joined the project at its last stages. This led to the introduction of a great number of new variables and/or items and contributed in over-emphasizing some strategic axis (domains) to the detriment of others. The increasing number of participants, with different views, can be considered as an advantage when it comes to develop a referential that can be implemented in a great variety of institutions but also as a disadvantage, because of the “heaviness” of the referential which became complicated. The increasing number of participants involved in the process also contributed to making relationships more political and team work less efficient. This led to the decision to split the group into five sub groups (one per strategic axis/domain). Finally the cross-stages analysis shows that the number and variety of “external” stakeholders increased and that their involvement in the process “decreased” at the last stages. This could be due to the necessity for team members to meet the deadlines that have been set up to comply with the new

regulations but also to the difficulty to integrating different points of view and sharing (common) interpretations.

The analysis also showed that the whole processes evolved along periods of “evolutions” and “revolutions”. It may be argued that periods of evolutions are characterized by – stability (homogeneity) in teams and proximity among their members (delegates from Grandes Ecoles which are (rather) homogeneous (specialized in Business or in Engineering) forming “communities of practices”. This helped reaching a consensus at each stage, facilitated teamwork, and enabled building a climate of trust among team members. The referential was designed to support CGE and to invite those of its members which were interested to use it on a voluntary basis.

Periods of “instability” arose when the interplay between “external” and “internal” factors created “tenseness” in the process. Such was the case when the new regulation, (article 55) and its associated deadlines, “forced” to profoundly review and redesign the former CGE referential (which was still in process), led to integrate new team members and stakeholders (number and variety) with different expectations, points of views, involvements and commitments. The implementation of sustainability and the use of the new referential by all French Higher Education became compulsory.

These early findings invite us to pursue our research and to further investigate our case study to provide complementary or new answers to our research questions. We came to the provisional conclusion that similarities could exist between our analysis and results from researches led in sociology. It would be worth further analyzing and interpreting this case study in the light of the literature on “intermediary” and /or “boundary” objects that have been identified in design activities and “communities of practices”. These notions of intermediate and boundary objects have been developed as a research stream in the sociology of sciences, (Vinck, 1999, 2009). According to Wenger (1998 p;105 cited in Benn&Martin, 2010 p.399) “boundary objects are “ artifacts, terms, concepts and other forms of reification around which communities of practices can organize their interconnections” Such “objects” are adaptable to different viewpoints and robust enough to maintain identity among them” (Star & Griesemer ( 1989 p.387) cited in Benn& Martin, 2010 p.400). Star (2010) identifies a set of characteristics of boundary objects: their - interpretive flexibility- material/organizational structure- scale and granularity. Intermediate objects have been analyzed in design activities and networks of scientific cooperation (Vinck, 1999, 2009). Different types of intermediate objects, (circulating among actors involved in these activities), have been identified. Such is the case of texts (mails, intermediary reports, technical documents, forms and formats, etc...). Successive versions of the referential (structure, content) seem to reflect the characteristics that have been attributed to these intermediate and boundary objects. They could be viewed as the outcomes of interactions in and between communities of practices.

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## Selected Reports

Conférence des Présidents d'Université – Conférence des grandes Ecoles « Le référentiel National Plan vert » disponible sur internet

Ministère de l'Ecologie, du Développement durable, des Transports et du Logement : Enseignement supérieur « Le canevas et le référentiel du plan vert » <http://www.developpement-durable.gouv.fr/La-canevas-et-le-referentiel-de.html>

Ministère de l'Enseignement Supérieur et de la Recherche « Le Plan vert des établissements d'enseignement supérieur » article 55 de la loi Grenelle 1 »

UNESCO "UN decade of education in sustainable development 2005-2014

<http://unesdoc.unesco.org/images/0014/001416/141629e.pdf>

UNESCO "Review of contexts and structures for Education for sustainable development 2009

[http://www.unesco.org/education/justpublished\\_desd2009.pdf](http://www.unesco.org/education/justpublished_desd2009.pdf)

UNESCO Education for sustainable development .Unesco's Vision and perspective

[http://portal.unesco.org/en/ev.php-URL\\_ID=5427&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=5427&URL_DO=DO_TOPIC&URL_SECTION=201.html)