
A Comprehensive Sustainability Policy at the School of Economics and Business, Universidad de Chile

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*You never change things by fighting the existing reality. To
change something, build a new model that makes the existing
model obsolete.*

—R. Buckminster

Abstract

The training of professionals with ethical, social and sustainable values has become a relevant focus of higher education institutions, because of different events that transcend the acceptable limits of fair and respectful social interaction with the environment. This paper presents the experience of the social-environmental sustainability office, EcoFEN, of the School of Economics and Business at University of Chile, which addresses the challenge of achieving a Sustainable Campus by 2025. The work has been done systematically during the period of 2007–2015, focusing the efforts on a policy of comprehensive sustainability, which has 4 lines of action: research, teaching, extension and management. In terms of teaching, the policy promotes the incorporation of curricular activities with a focus on sustainability; at a management level, it encourages changes in consumption practices of the institution; and at the extension level, it encourages various activities with the university community and sustainable entrepreneurs. One of the future challenges of the School is to formalize a permanent line of research in sustainability. This paper might be

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useful for other campuses seeking to develop their own formative environment that promotes sustainable and ethical training of professionals.

Keywords

Sustainable campus • Higher education • Education for sustainability

1 Introduction

Today we live in a world with large and unbalanced environmental and ecological changes, which directly affects the lives of all beings inhabiting the ecosystem. The factors of this crisis have gestated from the top predators of the ecosystem: human beings and their actions. Human beings take opportunities for growth and create unlimited needs with finite natural resources (Waas et al. 2010).

Local and global ecological crisis shows us that we should start a paradigm shift. In this sense, conserving nature as an inexhaustible source of resources, where the only argument is confidence in human progress and technological advances, has led us to a great ecological crisis. To address this, the model of sustainable development aims to develop greater environmental awareness, in order to impose limits on the use of natural resources, necessary to protect the planet.

Humanity has the ability to make development, sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits - not absolute limits, but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. (World Commission on Environment and Development 1987)

Universities, as organizations, are not exempt from contributing to achieving sustainable development, and it has increasingly attracted the attention of educational institutions. One of the first signs of university's commitment to sustainable development, is The Talloires Declaration (1990) (Figueiró and Raufflet 2015). The Talloires Conference gathered 31 university administrators worldwide and resulted in The Talloires Declaration, a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities. Nowadays, it has been signed by over 350 university presidents and chancellors in over 40 countries. In this sense, the Declaration of Talloires was a starting point to several universities to begin to incorporate actions to generate more sustainable campus, both in management and in terms of the training given to their students, to form citizens committed to their environment and to contribute generating knowledge on the subject.

In this context, *“some suggest that higher education is currently experiencing a swing-back, a return, to an original purpose of cultivating civic responsibility and citizenship via a scholarship of engagement. Such movement would require institutions of higher education to model civic responsibility and engagement at the*

organizational level. It would also require that the universities' roles of teaching students and perpetuating knowledge through research need to be re-oriented or expanded to contribute more explicitly to societal needs and challenges" (Stephens and Graham 2010).

Shifting or re focusing Universities purpose to sustainable development is not an easy task, because it aims to change the very culture of the university and its members. This article present the systematization of a comprehensive sustainability policy at the School of Economics and Business of Universidad de Chile, designed to address the challenge of incorporating sustainability literacy in all the University's main activities, through changes in the way we understand institutional management, teaching, extension and research.

2 Sustainability in Chilean Higher Education

In Chile, since 2012, there is a Sustainable Campus Network, whose mission is to enhance the efforts of the Higher Education Institutions (HEI's) to consolidate the practice of sustainability in all areas of their institutional activities. In total, it brings 15 Chilean institutions of higher education together. This network has enabled universities to work together in promoting education for sustainability and organizing once a year a national conference where the best experts in the field are brought into the country.

Aiming to formalize this growing interest, the Sustainable Campus Network drafted the "Framework Protocol for Inter-cooperation: Sustainable Campus", covering two areas: education and campus management.

The Sustainable Campus Network is also running the Clean Production Agreement: a soft environmental instrument in Chile, run by the National Cleaner Production, that aims to promote clean production through productive development by guiding and promoting efforts in sustainable management of campuses throughout Chile (Red Campus Sustentable 2015). Universidad de Chile joined the The Clean Production Agreement (APL), and specifically, the School of Economics and Business.

2.1 Sustainability in Universidad de Chile

Universidad de Chile is the oldest university in the country, founded in 1842 and one of the most prestigious HEI's in Latin America. Currently, Universidad de Chile is organized in 14 faculties, 4 interdisciplinary institutes and three disciplinary centers. In 2015, the University had an enrollment of more than 28,000 undergraduate students, distributed in 71 programs. The founding statute of the University of Chile (Article 2, 2006), it states that the institution's mission:

The generation, development, integration and communication of knowledge in all areas of knowledge and domains of culture, constitute the mission and the foundation of the activities of the University, (...) The University assumes in pursuit of excellence in training people and contribute to the spiritual and material development of the nation. It serves his mission through the functions of teaching, research and development in science and technology, humanities and the arts, and extension of knowledge and culture in all its breadth. (...) It is the responsibility of the University to contribute to the development of cultural heritage and national identity and the improvement of the educational system of the country.

Consistent with its mission, Universidad de Chile has expressed its commitment to environmentally sustainable development by signing the “Declaration of Talloires” (Senado Universitario 2012). The Sustainability Policy was approved in 2012, with the mission to lay the groundwork for a strategy that will help to transform the university into a sustainable institution, reaching all four areas: Extension, Teaching, Research and Management. It also drafts a definition of sustainability in the academic curriculum:

Universidad de Chile defines sustainability as the aspiration of humanity to perpetuate their existence and welfare of all life forms on the planet, considering cultural, environmental and economic dimensions. From this perspective, it is understood that in the curriculum of the University, sustainability must be present in the academic programs from their basic and specific applications transversely. This was expressed by undertaking focused courses and / or related to sustainability topics in each discipline themselves, in order to form citizens with tools of systematic thinking, anticipation of future problems, environmental awareness and understanding of the regulatory and environmental aspects, management strategies, collaboration and interpersonal involvement with community profile, which will be validated within the competence of the academic programs of the University (University Decree No. 34.852).

Thus, Universidad de Chile as a public institution, appropriates these guidelines in order to develop tomorrow’s professionals and expertise values from a comprehensive perspective, where they can become active, socially responsible citizens, and leading change processes.

3 Sustainability Policy at the School of Economics and Business

HEI’s not only understood the importance of incorporating the issue of sustainable development, but the fact that the world of business and politics is also looking to that horizon. An example of this, is that in 2015, the agreement signed in COP 21 in Paris stressed the importance of education, training, awareness and public participation, public access to information and cooperation at all levels in matters of Climate Change. In that sense, a school of economics and business cannot be oblivious to these issues.

In particular, at the School of Economics and Business (FEN) at Universidad de Chile, created in 2009 an Office of Social Responsibility, oriented to articulate and promote social responsibility within the educational community, linking the

country’s needs with the work of the School and thus contributing to sustainable human development.

Within this unit, is installed the project “ECOFEN for a Sustainable Campus” (hereinafter ECOFEN), formed in April 2013, consolidating a long history of work towards sustainability. Consistently, it’s purpose is to transform this school into a leading Latin American level for 2025 Sustainable Campus (SC).

EcoFEN exists to address two key problems: at the macro level, the undeniable local and global ecological crisis, and at a micro level, preparing the institution to meet this new challenge. In fact, “EcoFEN for a Sustainable Campus” is a merger between a student organization called EcoFEN, with an institutional organization called Sustainable Campus. Therefore, today gathers initiatives related to sustainability in FEN, uniting the work of students, teachers and staff.

The importance of achieving this transformation in FEN lies in the prestige of the institution at a national and international level (INOMICS, 2013 America Economía, 2013), and the level of influence that its graduates have in the various spheres of power. Every year, more than 300 graduate professionals are graduated and take over positions of high influence in both the public and private sectors. As FEN is a living example of university sustainability becomes more likely that the decisions of these professionals are sustainable not only economically, but also environmentally and socially.

EcoFEN success is based on positioning and implementing sustainability initiatives in the daily life of the FEN. These allow the community to empathize, understand and grasp the underlying concepts of sustainability that need to be socialized today (Fig. 1).

These initiatives are part of the four lines of action of internationally recognized Sustainable Campus: management, teaching, research and extension. Framed in this conceptual system, EcoFEN has worked since 2013 strongly in this Lines of Action.

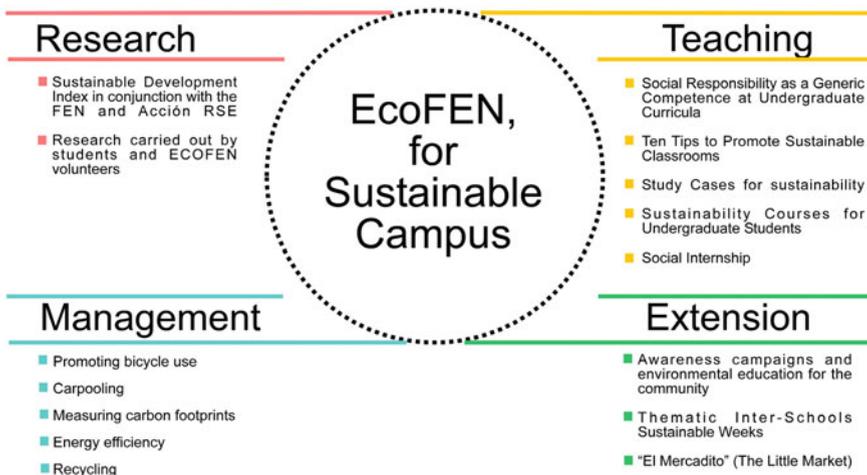


Fig. 1 EcoFEN, for a sustainable campus lines of action

3.1 Line of Action in Management

EcoFEN seeks to transform the School of Economics and Business in a living example of sustainability, from the efficient use of energy, water and paper, minimizing the carbon footprint, energy generation with NCRE (Non-Conventional Renewable Energies), water treatment and reuse, integrated management waste, among other components of an optimal and responsible management of the university campus. Some of the projects implemented to change the educational community habits are:

3.1.1 Promoting Bicycle Use

Promotes the use of alternative urban transportation, friendly to the environment and healthy for the members of the university community. It started to be implemented by 2014, with the installation of 120 bicycle parking spaces, a bike repair station and delivering security locks. This project was a success, and today is committed to expanding with 150 more parking spaces, since the use of this means of transport has amassed within the community.

3.1.2 Carpooling

In the year 2013 the initiative was approved and began implementing a virtual platform to promote carpooling, named “Aventones FEN”. In this platform, users can indicate their daily routes and travel times, and the platform automatically identifies someone who travels by car on the same route. Using the platform helps to decongest the city, avoiding the emission of CO₂, consuming less fuel, and strengthen internal networks of the School.

3.1.3 Measuring Carbon Footprints

The comparative measurement of CO₂ emissions was conducted in 2012, and has been to this day an annual challenge. This measurement is based on the GHG protocol, thus addressing direct sources like liquefied gas, indirect sources as electricity, and a variety of others as attributable to paper, waste, recycling, transport, among others (Fig. 2).

3.1.4 Energy Efficiency

Energy management has been approached from the communication of best practices for the efficient use of energy in the entire university community. This has been part of a coordinated effort between different units of the school, which has facilitated the development of complementary best practices, such as changing lights to LED, air conditioning use policies, among other activities.

3.1.5 Recycling

The recycling of waste is a program that has been developed since 2008, together with the association of public and private entities. It commits the university community in the separation of waste. The implications of sustainable waste

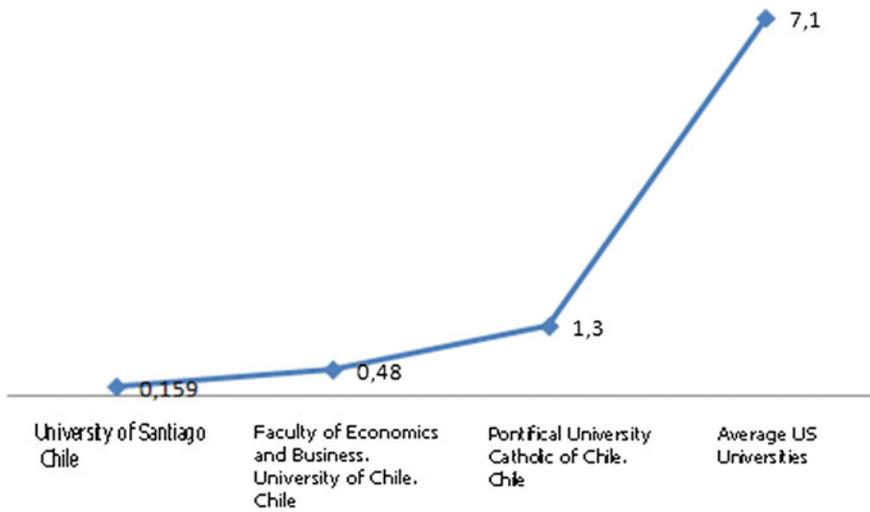


Fig. 2 CO₂ per capita emission by institution. *Source* ECOFEN (2015)

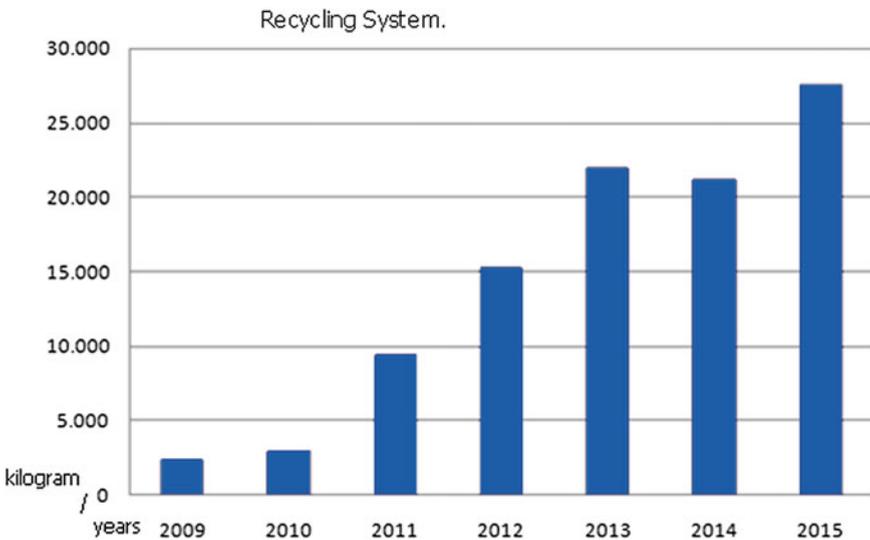


Fig. 3 Total waste recycling measured in kilograms. *Source* ECOFEN (2015)

management are a challenge we have taken as an educational institution with a vocation for public service and interest in sustainable development, promoting a university, responsible and aware of the impacts circular economy. Today in FEN, cardboard, white paper, diaries, pet-1, clear bags and film, Tetra Pak, cans, toner cartridges, ink, batteries, cell phones, electronics and peripherals are recycled. The

recycling of waste has systematically increased since 2009, as shown in the graph (Fig. 3).

3.2 Line of Action in Teaching

Along with changing the habits of the university community, ECOFEN considered important the teaching of skill, attitudes and values to contribute in this way to educate professionals who are able to deliver effective, efficient and sustainable solutions and thus can contribute to achieving processes neutralize damage and destruction caused by this environmental crisis. In that sense, we have raised the following:

3.2.1 Social Responsibility as a Generic Competence at Undergraduate Curricula

The School of Economics and Business has defined five common generic competences for its three undergraduate programs. Among these, is the competence of social responsibility, defined as:

It is the use of a set of criteria to anticipate the impacts and making professional decisions, considering the responsibility of the various stakeholders of society and the balance of economic, social and environmental development, both to understand the context of a problem an organization or community and the development of ways of solution within the framework of sustainable human development (FEN 2015).

In that sense, it is expected that the FEN graduates are able to make decisions based on sustainability criteria, which means, as noted by the definition of the social responsibility competence and its sub-competencies, the identification of stakeholders and the consideration of different types of impact the decision-making within a company, as defined in Table 1.

3.2.2 Ten Tips to Promote Sustainable Classrooms

In order to involve teachers in training for sustainability, we worked to develop Ten Tips to Promote Sustainable Classrooms. The “Ten Tips” is a format, which

Table 1 Competence and sub-competencies definition

Competence	Sub-competence	Definition
Social responsibility	Involvement of stakeholders	Involve stakeholders, considering their needs, interests and context, for proposals and work actions
	Integrated consideration of social, economic and environmental impacts in work proposals and actions	Identify social, economic and environmental impacts both during diagnostic, performance and projection of the effects of selected measures

Source FEN (2015)

corresponds to a short document that usually deliver recommendations to teachers about their teaching practices.

The Sustainable Tips Are

1. **Reduce consumption of paper:** Avoid paper, send PDF print readings and/ or encourage your students to get the texts with peers in higher years. If you cannot avoid using paper, prefer recycled paper for printing and testing guidelines, duplex and if possible, more than one sheet of paper per side.
2. **Reuse materials at its disposal:** Reuse is not only environmentally, by lengthening the life cycle of objects, but also helps to save money. There are different materials in the Faculty that can be reused, for example, if you need to use flip charts in a session, use the informative posters that are no longer in use.
3. **Recycle waste generated in classes:** At the end of the class, ensure that you and your students have all waste (beverage cans, plastic bottles, pieces of paper, etc.) in the recycling centers available on FEN.
4. **Avoid unnecessary consumption of electricity:** Go up the blinds/curtains and make the most of available natural light, turning off the electricity in the room. Make sure the projector is turned on only if required for the class. Finally, when it ends, turn off the light and projector.
5. **Optimize the use of the air conditioning in the room:** Control environment helps improve concentration of students and reduces the consumption of electricity. Avoid the constant change of the thermostat, turning on and turning off the air conditioning. It is not only a waste of energy, but the temperature changes can be harmful to your health and that of their students. Let stable temperature at 20° if it is cold and 23° if it is hot. Close the windows if you use the air conditioning.
6. **Encourage peer or teamwork:** Peer work or teamwork not only enhances the learning of your students, allowing them to share different perspectives and experiences, but decrease the amount of material needed to implement an activity.
7. **Encourage your students and learn about the carbon footprint:** Look for relevant information on the carbon footprint and the calculation thereof through various free tools available online. Once students know the size of their footprint, you can implement various strategies for reducing and/or offsetting. We invite you to join the NPS footprint measurement.
8. **Encourage your students to prefer foods without unnecessary packaging:** Educate students about the importance of not producing unnecessary garbage in the cafeteria asking the least amount of packaging, paper bags, napkins, etc. Encourage your students to use reusable packaging.
9. **Encourage the use of public transport or bicycles:** Cars are a major source of pollution in cities. The use of public transport or bicycles represents a significant reduction in pollution of road congestion. In addition, transported by bicycle promotes physical activation and consequently, the health of your students. If you cannot use the above alternatives, share the vehicle with others during your trip.

10. **Join the digital age:** Ask your students to deliver tasks and assignments in digital format, through email and/or virtual classroom platform. Also, perform feedbacks digitally with the option to “check” available in Word. Avoid printing work to correct them.

3.2.3 Study Cases for Sustainability

In business education, case study methodology is widely used by academics, allowing students to learn based on experiences and real life situations, permitting them to build their own learning in a context that approximates to their future job performance. As part of the methodology of case studies, ECOFEN encourages that the cases used by the faculty work on the issue of sustainability, asking students to develop solutions that must incorporate the perspectives on the impacts, not only in the economic, but also social and environmental. During 2016, the first pilot of this initiative will be made.

3.2.4 Sustainability Courses for Undergraduate Students

EcoFEN is looking that FEN’s students recognize the seriousness and urgency of the ecological crisis, and to acquire the skills needed to successfully confront the various occupations. This is approached with the implementation of new courses and incorporating themes related to existing courses.

Along with integrating sustainable development through generic competences and the use of active methodologies in existing courses, we have been incorporating into the course catalog of the School of Business and Economics, courses directly associated with the issue of sustainability. In that sense, there are currently two elective courses available to undergraduates who work the focus of ecology: “Introduction to Ecology” and “Ecological Economics”

3.2.5 Social Internship

For the Business undergraduate program, the Social Internship is a mandatory curricular activity, considered as a prerequisite for approving the basic cycle. In the cases of Management Control and Accounting, students can for one of two ongoing curricular activities, the Social Internship or a Skills Workshop. Some of the Social Internship results are listed below:

- So far the number of students who have completed the Social Internship is 621 students between the fall semester 2013 and summer semester 2015.
- 93.7 % of students approved the Social Internship.
- 91 social organizations have received interns from the School of Economics and Business. Of these, 75 organizations are currently active, which means that have received students, at least in two consecutive semesters.
- Both student self-assessment, and supervisor’s evaluation, are satisfactory. Overall, students evaluate themselves on average with a 6.5, while their supervisors evaluated them with a 6.4. (In a scale from 1 to 7, being 7 the highest score)

3.3 Line of Action in Extension

Extension initiatives have facilitated involvement, integration and empowerment of student volunteers, social practitioners, staff and teachers, executing projects of their interests, such as:

3.3.1 Awareness Campaigns and Environmental Education for the Community

An active, informed and aware community is needed to develop projects in the area of sustainability. Ongoing training with digital campaigns, interventions in public spaces is the way we have approached this challenge. The topics are varied, such as recycling, energy efficiency, water efficiency, healthy eating.

3.3.2 Thematic Inter-schools Sustainable Weeks

The efforts of the School of Economics and Business require partnerships with other schools of the University of Chile. Thus, joint activities have been conducted with the School of Agricultural Sciences, Forestry and Conservation, Veterinary and Animal Sciences, Physical Sciences and Mathematics, Social Sciences.

The week of sustainability was one of the activities developed in conjunction with the different schools, where relevant activities were conducted at each of the entities: urban planning and sustainability, energy and water resources and common interventions, urban pollution and health workshops orchard footprint measurement, among others.

Another activity held together is the “Bike Week”, where the use of this transportation was promoted within the schools, and communication roads between schools were created as a result of the activity.

3.3.3 “El Mercadito” (The Little Market)

It is a fair of sustainable enterprises, open for the sale of products and the transfer of experiences of entrepreneurs to the university community, where we seek to encourage citizen participation spaces, the social economy, and creating environmental awareness. There is urgency to position businesses, products and/or services, as organizations with explicit responsibilities, analyzed and developed from their different angles and not just from the economic gains. Thus, that is what “The Little Market” promotes, a culture of entrepreneurship and sustainable education, an experience that helps to identify the balance between social, economic and environmental impacts; and finally promote initiatives of fair trade.

3.4 Line of Action in Research

EcoFEN research seeks to develop a contributions leading to the resolution of the challenge of sustainability, both in terms of title seminars, professional research and studies conducted by the unit.

3.4.1 Sustainable Development Index in Conjunction with the FEN and Acción RSE

The Sustainable Development Index (IDS) was calculated by FEN Academics in collaboration with Acción RSE. Is based on 10 million possible forms of asses the development of each country, ultimately trying this concept as a probabilistic object. It considers different ways of assuming the substitution or complementary between different dimensions of development, and presents each case separately. Ultimately, this research contributes to answering if possible, beyond the structure you set, say something about the levels and dynamics of sustainable development in different countries (Leiva et al. 2013).

3.4.2 Research Carried Out by Students and ECOFEN Volunteers

EcoFEN also promotes students to get involved in sustainability research projects. As until 2015, two major research projects were developed by students and volunteers.

Research: “Estimating the health costs of pollution by particulate matter in Chile” This paper seeks to identify the sources of particulate matter in Chile are and to estimate the economic health costs for Chilean society to have contaminated air. Through probabilistic functions, the number of cases of mortality and morbidity associated with particulate contamination is estimated. The results indicate that air pollution from PM10 has a considerable effect on the health, productivity and quality of life of people, bringing with it significant economic losses. In this sense, it is essential for regular Chilean society and oversee the actions that contribute to pollution, so as to improve the quality of life of Chileans and reduce costs associated with it.

Research: FEN Carbon Footprint Report 2012, 2013, 2014 Annual Comparisons of GHG Emissions The report consolidates all previous work on measuring carbon footprint for the years 2012, 2013 and 2014 applied via the GHG Protocol methodology. Corrected data and methodologies in obtaining information in order to reach a concluding analysis of how power has advanced through the years and still the essence of the methodology proposed from the beginning and to guarantee the essence of the method.

This seeks to correctly identify in which area the emission level is higher and which less. In conjunction with this consistency is achieved where it is really important to implement policies to reduce greenhouse gases that affect the overall footprint of this organization.

4 Conclusions: Implementing Sustainability in an Economics and Business School

After three years of existence of EcoFEN, and the Sustainable Campus project, it is important to perform exercises systematization and reflection on the achievements and opportunities for improvement to address the challenge of creating greater environmental awareness as an educational community.

In that sense, one of the first thoughts that arises is that one of the positive aspects of the teaching line of action is the existence of the social responsibility competence, whose definition is based on sustainable human development, that has largely not been achieved by other experiences, but *“few competences focus on the concept of SD, but many competences include partial elements of SD. Competences for SD are linked More Often With ethical and moral attitudes, and less Frequently With orientation system, future orientation, and action skills.”* (Lambrechts et al. 2013)

Also, another positive aspect of the experience is the existence of a social internship. This is relevant, since most work-related experiences of sustainability in higher education focus on specific activities, but fails to connect them with the design of a course or a program (Figueiró and Raufflet 2015; Lozano et al. 2013).

Despite this, we have as challenge to measure the percentage of students achieving the expected standard of the Social Responsibility Competence that participated in a Social Internship or SD Courses. This has relevance not only in terms of ensuring the quality of education provided to our students, but could also make a contribution to other schools that are on this path, whereas according to the review by Figueiró and Raufflet (2015) no article in this paper reviewed aimed to contribute to assessing of both advancement of sustainability in management education as well as the assessment of learning.

Also, to carry out this type of initiative, it has-been crucial to work with the university community, especially students, in terms of the social inclusion interns and volunteers. Incorporating logical and sustainable habits, you cannot do without a participatory process of the community so that the results are permanent in time and point to a change in the institutional culture (Disterheft et al. 2015).

Accordingly with the systematization of actions and initiatives to promote SD, our biggest challenge is also clear: although we have made progress in terms of the line of action in research, one of our future challenges is to formalize a permanent line of research in sustainability in the School of Economics and Business Universidad de Chile, on the understanding *“the urgent need for sustainable development and the importance of research in this process, universities and their Researchers bear the major moral and responsibility to contribute to their research to sustainable development. They should consider this, moreover responsibility as a full part of the academic mission and not merely as an add on”* (Waas et al. 2010)

To do this, we consider an advance that the Management Department has founded 2015 Sustainability Observatory, which has associated academics interested in these issues. In that sense, a close link to the Observatory could help us promote a permanent line of research in sustainability and more academic interest.

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