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## Environmental entrepreneurship and public policy: the case of the Programa Emprender para la Vida (Entrepreneurship for Life Program)

Emprendimiento ambiental y política pública: el caso del Programa  
Emprender para la Vida

Entrepreneuriat environnemental et politique publique: le cas du programme  
Entreprendre pour la vie

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### Abstract

Nowadays, several mega-trends capture the attention of governments, academia and the public in general given their implications for the quality of life and the development of nations. This work deals with two of them: entrepreneurship and environmental protection, as a result of research aimed at analyzing the processes, actors and results of the "Entrepreneurship for Life" Program led by the Valle de Aburrá Metropolitan Area, executed during the period from 2012 to 2015, in order to contribute to the improvement of public policies on eco-entrepreneurship. The methodology of the Synergy System<sup>1</sup>, applied by the Colombian Government, was used to appraise public policies. The required information was collected through in-depth interviews with the creator of the program, the entrepreneurs who benefited from it, officials of the entities involved and experts. Then, it was complemented by the analysis of documents such as minutes, reports and other sources. Among other results, it was evident that, although the public policy on environmental entrepreneurship is still incipient, the evaluated Program met the objectives for which it was created.

**Keywords:** Eco-entrepreneurship, Environmental entrepreneurship, Public policies, Assessment of public policies, Administration and organizations.

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## Resumen

En la actualidad, varias megatendencias captan la atención de los gobiernos, la academia y la población en general, dadas sus implicaciones en la calidad de vida, así como en el desarrollo de las naciones. Este trabajo aborda dos de ellas: el emprendimiento y la protección del medio ambiente, como resultado de la investigación cuyo objetivo fue el análisis de procesos, actores y resultados del Programa “Emprender para la vida” liderado por el Área Metropolitana del Valle de Aburrá, ejecutado durante el período 2012 a 2015, con el fin de contribuir al mejoramiento de la política pública de eco emprendimiento. Se utilizó la metodología del Sistema Sinergia<sup>1</sup>, aplicada por el Gobierno Colombiano para evaluar las políticas públicas. La información requerida se recolectó mediante entrevistas en profundidad con el creador del programa, emprendedores beneficiados del mismo, funcionarios de las entidades involucradas y expertos; se complementó con análisis documental de actas, informes y otras fuentes. Entre otros resultados, se evidenció que, aunque la política pública de emprendimiento ambiental es aún incipiente, el Programa evaluado cumplió los objetivos para los que fue creado.

**Palabras clave:** Ecoemprendimiento, Emprendimiento ambiental, Políticas públicas, Evaluación de políticas públicas, Administración y organizaciones.

## Résumé

Actuellement, plusieurs mégatendances attirent l'attention des gouvernements, des milieux universitaires et de la population en général, compte tenu de leurs incidences sur la qualité de la vie et le développement des nations. Ce travail porte sur deux d'entre eux: l'esprit d'entreprise et la protection de l'environnement, résultat de la recherche dont l'objectif était l'analyse des processus, des acteurs et des résultats du programme : “Entrepreneuriat pour la vie”, mené par la Zone Métropolitaine de la Vallée d'Aburrá, mené pendant la période 2012-2015, afin de contribuer à l'amélioration de la politique publique de l'éco-entrepreneuriat. La méthodologie du système Sinergia<sup>1</sup> a été utilisée et mise en œuvre par le gouvernement colombien pour évaluer les politiques publiques. Les informations requises ont été collectées à travers des entretiens approfondis avec le créateur du programme, des entrepreneurs qui en ont bénéficié, des responsables des entités impliquées et des experts; et ont été complétées par une analyse documentaire des procès-verbaux, rapports et d'autres sources. Parmi d'autres résultats, il a été démontré

que, même si la politique publique d'entrepreneuriat environnemental n'est toujours pas appliquée, le programme évalué remplissait les objectifs pour lesquels il avait été créé.

**Mots clés:** Éco-entrepreneuriat, Entrepreneuriat environnemental, Politiques publiques, Évaluation des politiques publiques, Gestion et organisations.

## 1. Introduction

Governments have, among many other duties, the responsibility to solve the problems of environmental deterioration and to improve the livelihood conditions of the population with respect to employment, equity, health and education.

As to global environmental issues, in September 2015, world leaders, meeting within the framework of the United Nations, adopted a new sustainable development agenda with 17 Sustainable Development Goals-SDG, each with specific targets to be achieved by 2030. It is expected that all countries will intensify their efforts to end poverty in all its forms, reduce inequality and combat climate change (ONU, 2016). In this sense, in Colombia, the National Planning Department (DNP, 2016), developed a tool called the Territorial Kit consisting of a methodology to include the SDG in the Territorial Development Plans (PDT per its acronym in Spanish), in order to align them with the 2030 Development Agenda.

On sustainability, researchers such as Silajdžić, Kurtagić and Vučijak, (2015), argue that countries with economies in transition see themselves forced to undertake actions for rapid growth, but with minimal impact on natural resources. To that end, it is necessary to reflect on the role and functioning of public policies, i.e., their level of risk and its influence on business creation, as well as the connection between sustainability and entrepreneurship. Along the same lines, a good strategy by governments is creating a

<sup>1</sup> SINERGIA (SYNERGY) is the National System of Evaluation of Management and Results of the Republic of Colombia, whereof the Departamento Nacional de Planeación (National Department of Planning) is in charge, to assess the public policies of the government through the performance of several types of analysis, such as operational.

<sup>2</sup> According to Act 1625 of 2013, “Metropolitan Areas are administrative entities under public law, formed by a group of two or more municipalities integrated around a core municipality, linked together by territorial, environmental, economic, social, demographic, cultural and technological dynamics and interrelationships that require coordinated administration for the programming and coordinating of their sustainable development, human development, territorial planning and rational provision of public services”. (Congreso República de Colombia, 2013).

public policy that supports environmental entrepreneurship, including programs aimed at encouraging ecological consumption (Aaijaz, bin Ibrahim, bin Ahmed, 2009) or sustainable consumption.

Particularly in Medellín and the metropolitan region, the public entity that has under its control the protection of the environment is the Metropolitan Area<sup>2</sup> of the Valle de Aburrá as it is the environmental authority in that sub-region, for it also has authority functions in the planning of the territory and mass transportation. This is an administrative entity under public law, which associates the 10 municipalities that make up the Valle de Aburrá (Barbosa, Girardota, Copacabana, Bello, Medellín, Itagüí, La Estrella, Envigado, Sabaneta and Caldas). The Valle de Aburrá is a sub-region of the Department of Antioquia. The sub-region is home to approximately 59% of the department's population and is the main development hub of the department of Antioquia as it concentrates over two-thirds of its economic activity. (Área Metropolitana del Valle de Aburrá, 2017).

Given these characteristics, the Valle de Aburrá generates large volumes of solid waste, which, cause environmental damage on top of the disadvantages to its management. Moreover, its topographical conditions (valley) bring about other issues such as poor air quality, due to the limitations to its circulation (Área Metropolitana del Valle de Aburrá, 2017)

Among the strategies to address these issues, in 2008 the Valle de Aburrá Metropolitan Area created a program<sup>3</sup> aimed at reducing the volume of solid waste produced in the region, according to an interview to the creator of the same by supporting the creation of companies that reuse it in their production process. Initially, it was given the name "Entrepreneurship for the use and treatment of solid waste" and had the objective of "generating a culture of environmental entrepreneurship that would serve the businesses creation and strengthening thereof of the population of the Metropolitan Area, which is oriented towards offering specific solutions to the

environmental issues of the region" as appears in its 2008-2012 Management Plan (Área Metropolitana del Valle de Aburrá, 2008, p. 60).

Subsequently, in 2012, this program adopted the name "Entrepreneurship for Life" and other lines of intervention were added: Bio-trade, sustainable construction, socio-environmental education, renewable energies, air and soil quality management, hazardous and non-hazardous waste management, water resource management, recovery and conservation of biodiversity, clean technologies and products. Since then, CREAME- Incubadora de Empresas (Business incubator) has run this program. This research analyzed the program as a public policy in order to evaluate its actors, operations and results achieved in the period 2012-2015.

A public policy is defined as a process that integrates decisions, actions, agreements and instruments, advanced by a public authority, in which eventually individuals participate, and is aimed at contributing to solving a situation that has been defined as problematic (Gavilanes, 2010, p. 156). What's more, according to Roth (2002, p. 27), its purpose is to guide the behavior of actors, whether individual or collective, to modify this situation. In this study, the situation to be solved is the environmental quandary.

Public policies are subject to evaluation, as Roth (2009) states, public policy assessment refers to the evaluation of state action through the measurement of results and impacts, which should allow for timely adjustments. According to Roth (2002), Salazar (2009) and Baltazar (2008), there are several typologies according to criteria such as the time, the purpose, the subject, the type of evaluators. In this case, applying the above criteria, this is an ex-post and endoformative evaluation; of processes and results; and external, respectively. Complementarily, authors such as Valencia (2013) posit a systems approach that should allow us to appraise the policy in its components: people, organizations, institutions and the interaction among them and between them and the environment, as well as the performance of functions

<sup>3</sup> Created by Metropolitan Accord 7 from July 8, 2008 (Área Metropolitana del Valle de Aburrá, 2008).

and their evolution over time. The Synergy methodology works with these bases.

On the other hand, with respect to entrepreneurship, this paper assumes, in particular, the concept of eco-entrepreneur or environmental entrepreneur, which matches the category of environmental or green entrepreneurship, according to the classification of the Ministerio de Educación Nacional (Ministry of National Education) (2012, p. 14). These kinds of entrepreneurs are seen as eco-conscious agents of change (Pastakia, 1998) and defined, among other ways, as “those entrepreneurs who enter eco-friendly markets not only to generate returns, but also with strong underlying green values” (Kirkwood and Walton, 2010). Similarly, Belz and Binder (2017) state that “sustainable entrepreneurship pursues a three-pronged approach of economic, social and ecological objectives” sequentially integrated so that it is possible to have such ventures be both socially and economically profitable.

The literature reviewed on environmental entrepreneurship makes it possible to identify different terms that allude to this topic. Among them are *environmental entrepreneur*, *eco-entrepreneur*, *ecological entrepreneur*, *green entrepreneur*, *social entrepreneur*, *sustainable entrepreneur*.

The results of the research showed that, although the public policy of environmental entrepreneurship is still incipient, the objectives of the Entrepreneurship for Life program were met in the 2012-2015 period. It also identified some aspects of the process capable of improving to enhance the program's results and impact.

The content of this paper is structured in three (3) main sections. The first one corresponds to the methodology; the second one presents the results and the discussion, which account for the characterization and motivation of the entrepreneurs interviewed, and the appraisal of the program in relation to its operations and results. Lastly presenting the conclusions and recommendations, including some proposals to improve the program.

## 2. Methodology

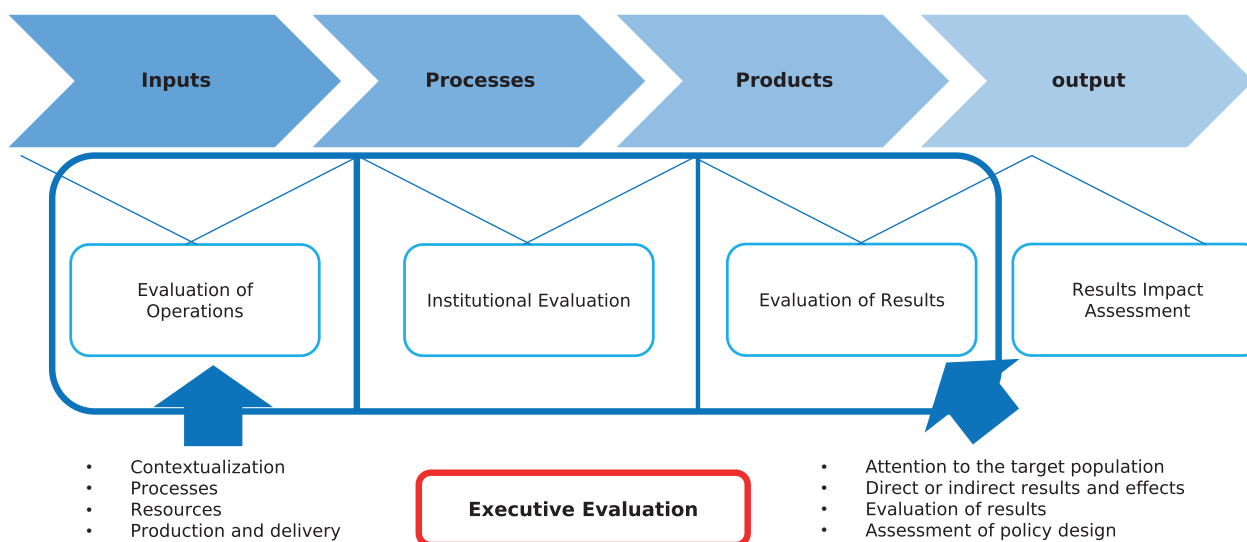
The analysis of the “Entrepreneurship for Life” program adapted the SINERGIA methodology, the National System for the Evaluation of Management and Results of the Republic of Colombia, which the National Planning Department is in charge of, and has two (2) pillars: Synergy Follow-up and Synergy Evaluations. This methodology assess government public policies through various types of analysis and is based on the systems approach, for it considers aspects such as inputs, processes, results, impact, among others.

The starting point of SINERGIA's methodology is the Program's Value Chain made up of four (4) elements: inputs, processes or activities, outputs and results. Methodologically, the outputs stem from the specific objectives and results of the overall objective of the program. Based on this chain, five (5) types of assessments are established according to the part of the value chain that encompasses the problems identified; these are: operations, institutional, results, impact and executive as Figure 1 will show (DNP, 2014).

In this case, the methodology for the evaluation of two (2) of the five (5) types as shown in Figure 1, was accepted; namely: operations evaluation and results evaluation. The institutional assessment was not applied because the environmental component is only part of the functions of the Valle de Aburrá Metropolitan Area and therefore went beyond the scope of the research. Likewise, generating expectations of performance evaluation of the staff members and the institution itself was deemed impertinent. Furthermore, the impact assessment was not implemented, as it was not yet possible to measure it, on the one hand, because the Program did not follow up on beneficiaries once they left it, and on the other hand, it was considered that sufficient time had not passed for this purpose. Finally, the executive assessment was not addressed because, as shown in Figure 1, it requires three (3) of the evaluations, of which the institutional one was not applied.

<sup>4</sup> Endoformative evaluation: its purpose is to inform program actors to make improvements.



**Figure 1. Value chain and types of SYNERGY evaluation**

Source: (DNP, 2014).

This methodology was chosen because it was considered to gather the theoretical elements of public policies evaluation. This evaluation is ex-post, endoformative<sup>4</sup>, of processes and results and, externally, according to the criteria of moment, purpose, subject and type of evaluators, respectively (Roth, 2002; Salazar, 2009; Baltazar, 2008).

On the other hand, SINERGIA is a highly valued system in Latin America (Roth, 2009) According to Bozzi (2001), this System has two (2) strengths: "one is the excellent articulation between the meso-levels of management and the macro levels of public policies, while the other is its capacity to make comparisons between the results of entities whose nature is very different" (p. 48).

### 2.1. Information gathering and analysis

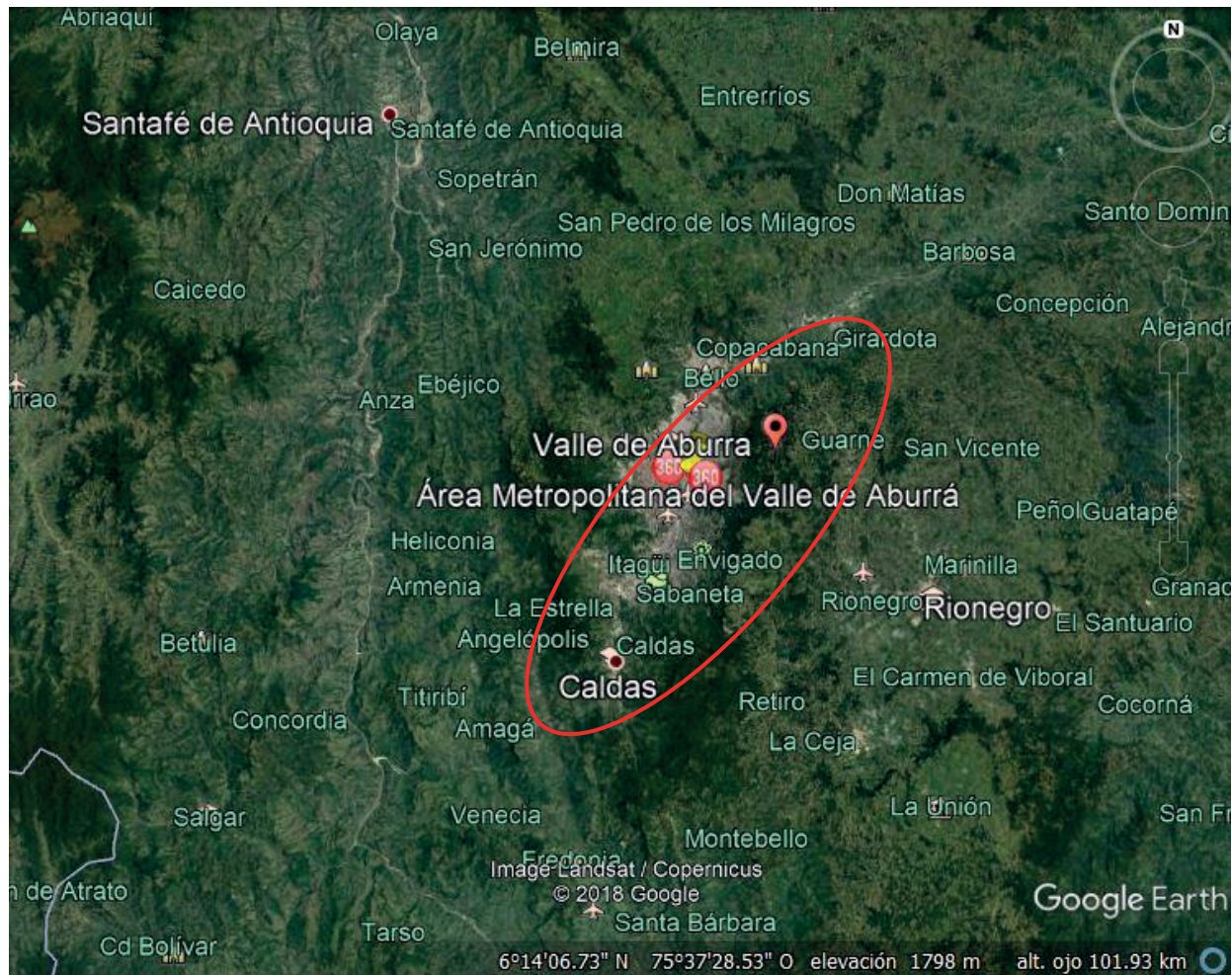
The gathering of information was carried out through various sources, among which the in-depth interview was privileged. Overall, it is based on non-standardized data collection methods, so no numerical measurement is performed and the analysis of results is not statistical (Hernández, Fernández, & Baptista, 2010).

Interviews were conducted with: the

program's creator, beneficiaries, experts and officials from the entities involved. Documents such as minutes of meetings, official reports, plans and standards, among others, were also used. In general terms, the technique used was content analysis.

### 3. Results and discussion

During the period 2012-2015, the Entrepreneurship for Life Program supported 76 projects in the Valle de Aburrá, which is located at the center of the Department of Antioquia. This is a region crossed by the Aburrá River from south to north with tributaries along its course, which is the main river artery, whose basin determines its geography, with an irregular and sloping topography. Located at an altitude between 1,300 and 2,800 meters above sea level, with an area of 1,165.5 km<sup>2</sup>. This geographical unit is enclosed by mountain ranges, which causes the formation of several microclimates, waterfalls, forests and various sites with high landscaping and ecological value (Figure 2). It has more than 3,730,000 inhabitants (according to DANE population projections to 2014), so it is home to approximately 59% of the Department's population. It is the main development hub thereof, as it clusters more than two-thirds of the economic activity

**Figure 2: Geographic location of the Valle de Aburrá**

Source: Google Earth Imaging Service

of the same, this is how it set itself as the second largest urban conglomerate in the country. (Área Metropolitana del Valle de Aburrá, 2017).

Figure 3 shows the distribution per line of action of 76 beneficiary undertakings in the four (4) calls of the Entrepreneurship for Life program, in the period from 2012 to 2015. Most of them were framed in waste management, which shows that the interest in the subject matter that gave rise to the Program in 2008 has been maintained.

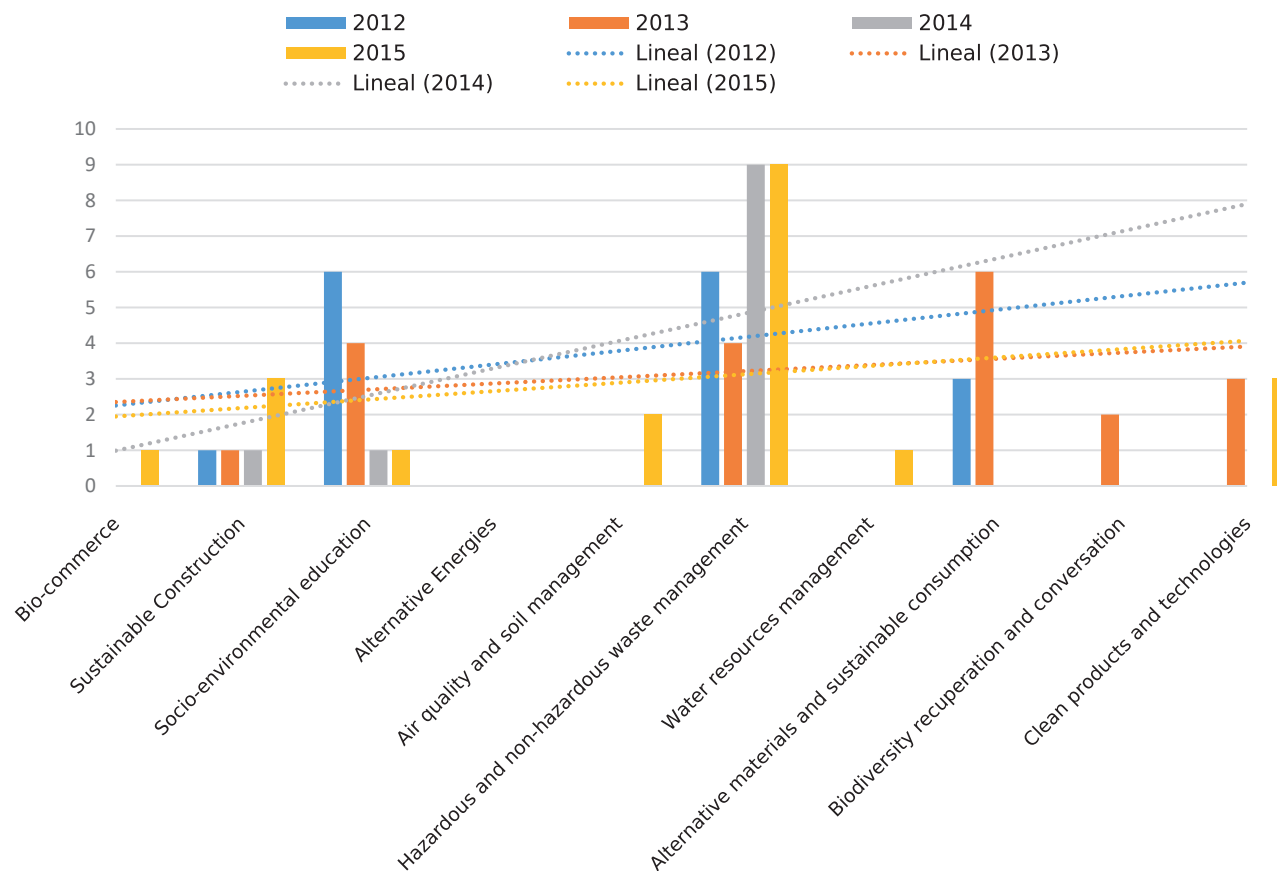
It is noteworthy that no projects in the Clean Energy line would have benefited and that the number of projects in the water resource management, air and soil quality management, recovery and conservation of

biodiversity lines was minimal, considering that solutions were required for these environmental quandaries.

This section presents the characterization of the entrepreneurs interviewed, their motivations, and the evaluation of the program.

### *3.1. Characterization of the entrepreneurs interviewed and their business ideas*

The demographic profile of the entrepreneurs interviewed who have benefited from the Program is displayed in Table 1, which shows that there is no gender prevalence; half of them fall between 25 and 35 years of age, two (2) are between 35 and

**Figure 3. Number of proposals per Lines of Action**

Source: Authors' own elaboration.

**Table 1. Demographic profile of the entrepreneurs benefited**

Criterion		Number of entrepreneurs
Gender	Female	3
	Male	3
Age	Under 25 years of age	---
	Between 25 and 35 years of age	3
	Between 35 and 45 years of age	2
	Between 45 and 55 years of age	---
	Over 55 years of age	1
Educational level	High School graduate	---
	Technician	---
	Technologist	1
	University level	1
	Specialization	2
	Master's Degree	2
	Doctorate	---

Source: Authors' own elaboration.



45 years of age and one (1) is in the over-55 age range; their educational level is high.

On the other hand, 67% of the proposals came from companies already formed and 33% were initiatives of entrepreneurs, who created the company later on, with the accompaniment of the very program. In relation to the economic sector, most of them belonged to the secondary sector.

### 3.2. Motivations of the entrepreneurs interviewed

Although it is not part of the methodology of SINERGIA, the motivations were inquired about, considering that they are an important part of the entrepreneurial process (Marulanda, Montoya and Vélez, 2014). According to the Kirkwood and Walton's (2010) ranking, mainly market opportunities with "green" products and services motivated half of those interviewed, a result that is consistent with their profile indicating they had had previous contact with the market; the others expressed their motivation arose from factors such as "being their own boss" and "passion". It is also highlighted that all the projects analyzed are based on opportunity rather than need (Marulanda, Montoya and Vélez, 2014).

### 3.3. Assessment of the Program

As explained in a previous section, the program's assessment was specifically applied to operations and results. According to DNP (2014, p. 40), the evaluation of operations "systematically analyses how a public intervention operates and how its processes lead to the achievement of its objectives. It identifies the relationships that each of the activities requires to produce a good or service"; it contemplates four (4) aspects: contextualization of the policy, processes, resources and production and delivery. The appraisal of results, on the other hand, determines the intentional or unintentional effects of public intervention, once the products have been consumed;

these effects must be related to public intervention. The results of both appraisals are summarized below in view of the aspects to be appraised according to the methodology of SINERGIA; some of them are expanded on throughout the text.

### 3.4. Evaluation of Operations

**Contextualization:** basically, the program offers training and advice on administrative and technical aspects. These are aimed both at established companies that would like to strengthen themselves and at potential entrepreneurs who come with an environmental business idea. The main organizational model for implementing the policy is outsourcing, so the Valle de Aburrá Metropolitan Area signed a contract with CREAME<sup>5</sup> to operate it. Thus, the leadership of the Valle de Aburrá Metropolitan Area in environmental issues guarantees the suitable gearing of the resources allocated to the program. Additionally, CREAME's strategic position in the entrepreneurship system in the Municipality of Medellín makes it possible to interact with actors such as investors, entrepreneurs and academics, which eases, among others, the holding of business and investment conferences (Table 2).

**Processes:** the processes and procedures for product delivery were found to be clearly defined; additionally, the criteria for selecting beneficiaries are clear. Figure 4 presents the processes, identifying the actors involved in each one (Table 2).

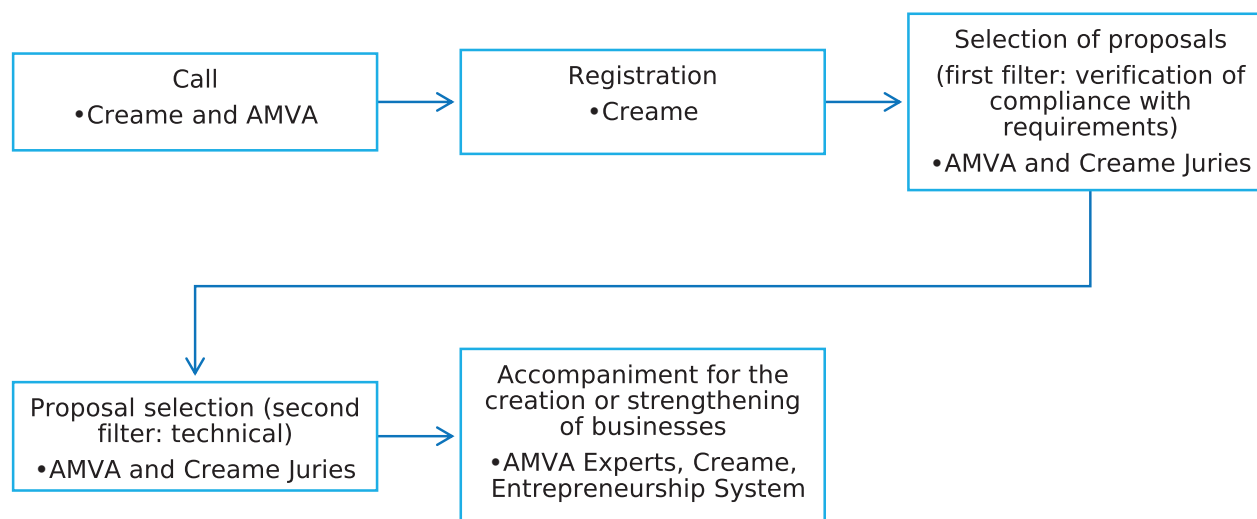
The actors involved in the different processes belong to three organizations: Valle de Aburrá Metropolitan Area, CREAME-Business Incubator and the Entrepreneurship System of the Valle de Aburrá. The actors in each of these are, by the Metropolitan Area of the Valle de Aburrá (AMVA), directors, liaison professional, thematic experts, jurors. For the CREAME-Business Incubator there are Directors, a Program Coordinator, environmental managers, social managers, members of the area of communication, specialized advisors. Lastly, the actors of the

<sup>5</sup> CREAME is an incubator and business accelerator that, among other activities, develops training programs on entrepreneurship, business development and the implementation of models that seek to incorporate companies into international, commercial and financial markets (CREAME, n.d.).

**Table 2. Summary of the Evaluation of Operations**

Aspect assessed	Result and findings
Contextualization	Organizational model: outsourcing, through an agreement signed with CREAME-Incubadora de Empresas (Business incubator).
Processes	<ul style="list-style-type: none"> <li>The processes are clearly defined (Figure 4).</li> <li>The outputs are consistent with the objectives of the program (see Table 3).</li> <li>Bottlenecks arise in the “selection” process, where proposals were rejected.</li> <li>Some beneficiaries dropped out of the programme.</li> </ul>
Resources	<ul style="list-style-type: none"> <li>Resources of the Valle de Aburrá Metropolitan Area - AMVA (per its acronym in Spanish): Financial and human talent (technical experts, jurors).</li> <li>Resources of CREAME-Business Incubator: human talent (thematic advisors, trainers, managers), teaching materials, facilities, intangible: contacts.</li> <li>Resources were allocated according to the AMVA's availability at the time for the implementation of all activities.</li> </ul>
Production and delivery of products	<ul style="list-style-type: none"> <li>Actors involved in the production and delivery of products: AMVA, Creame, members of the Medellín Entrepreneurship System (Figure 3).</li> <li>The products were delivered on time (Table 3).</li> </ul>

Source: Authors' own elaboration.

**Figure 4. Programa Emprender para la Vida (Entrepreneurship for Life program) processes summary. Period 2012-2015**

Source: Authors' own elaboration based on CREAME (2015).

Entrepreneurship System in Valle de Aburrá are thematic experts, jurors, financial experts, entrepreneurs, investors.

The evaluation of the processes identified a bottleneck that affects the development of the thereof, which arises when implementing each of the filters pick the proposals in the different stages. The volume of those that pass through is lower than that of those discarded

for different reasons such as: non-compliance with requirements, incomplete or erroneous information and/or documentation, different subjects from those called for, conflict of interest with the Entity, information that is not convincing from the technical, environmental and business standpoint, inadequate profile of the work team, among others. This means jury time is wasted. Thus, out of the total number of registered proposals submitted

for the 2015 call, only 18% (67) passed the second filter, with the result that the majority were rejected.

**Production and delivery:** referring to the benefits they received, the entrepreneurs expressed their satisfaction with the products and their consistency with the objectives of the Program (Table 2). Nevertheless, some felt that those who are just starting their entrepreneurial process and who do not have much administrative knowledge can better seize this opportunity. Table 3 details the products delivered by the program as part of the value chain thereto.

Among the activities most valued by the interviewees were the business roundtables to promote their product/service, as well as the possibility of interacting with other entrepreneurs, businesspersons and investors and the opportunity to establish contacts in different networks.

### 3.5. Evaluation of results

**Direct or indirect results and effects of the policy:** in addition to the results presented in the Table 4, the Valle de Aburrá Metropolitan Area won the ORBE award in 2015<sup>6</sup>. On the other hand, the program was chosen as one of the experiences adding to the priorities of the Global Development Agenda, Post 2015, line “Business models contributing to sustainable development” to participate in the 5th Global Compact Congress. It was also recognized among the 500 best socio-environmental projects in Latin America, within the framework of the Latin American Green Awards, held in Ecuador. It partook in the event “Forging the Future Towards a Green Economy” in Costa Rica, which created interest in the replicability of the intervention model with organizations such as the German Agency for International Cooperation - GIZ (per its acronym in German), the Presidential Agency for International Cooperation - APC (per its acronym in Spanish), in Costa Rica; and the Ministries of Industry and Commerce and of Housing, Environment and Sustainable Development of Colombia. It was nominated for the Sheikh Zayed Bin Sultan Al Nahyan International Prize in Dubai in recognition of its pioneering inputs to the field of

environment and sustainable development. (CREAME, 2015).

**Assessment of results:** in this aspect, according to the SINERGIA methodology, the effectiveness of the policy in achieving its objectives had to be assessed, as well as the expected quality and timeliness of the outputs and additional results to those set out in the objectives. In this sense, it was evident that during the analyzed period, the Program accompanied 76 undertakings, which meant a great contribution to the solution of environmental issues. As for the generation of an environmentally oriented entrepreneurial culture, it is a long-term process and therefore it is not yet feasible to evaluate it (Table 4).

According to the people interviewed, the quality of the products, defined as advisory services and training (Table 3) is good, which is evidenced by their perception of the program and, on the other hand, of the 76 projects that benefited, 27 have been submitted to other sources of financing and have won. Notwithstanding, some interviewees stated that some topics are better exploited than others regarding the level of knowledge and experience that the entrepreneur has. For Instance, the training and advice offered include very general management topics, which turn out to be very basic for those who already have a business background.

**Assessment of the policy's design:** inputs have been the same overall. Concerning experts and juries, increasingly more resumes are being uploaded into the database that is being developed for this purpose.

As for the external factors that led to the results, these were identified to be largely due to CREAME's experience as an administrator of the program. On the other hand, the beneficiaries acquired the capacity to partake in other programs at both the national and international levels, due to the topics covered by the training (Table 4).

### 3.6. Proposals for improvements to the “Entrepreneurship for Life” program

Deriving from the analysis, some proposals

**Table 3. Programa Emprender para la Vida (Entrepreneurship for Life Program) Value chain**

Inputs	Activities	Products or Services	Result
Enablers Advisors Speakers Infrastructure: equipped rooms Teaching Aids Audiovisual aids	Club Metropolitano de Emprendimiento (Metropolitan Entrepreneurship Club) Opportunity Identification Workshop	<b>Objective:</b> promoting an Entrepreneurial Culture with an environmental emphasis. <b>Product:</b> Training in entrepreneurship with an environmental emphasis Calls for proposals for accompanying business ideas with an environmental emphasis Identified business opportunity	<b>General Objective:</b> "To energize the creation and strengthening of companies that contribute resolving environmental issues by means of a cultural transformation towards entrepreneurship as an attitude of life, including the environment as a great opportunity to generate sustainability, wealth and development" (CREAME, 2015).  <b>Result:</b> Companies created and/or strengthened that contribute to the solution of environmental issues
Advisors Infrastructure: equipped rooms Audiovisual aids	Advice for the identification of business initiatives  Selecting of business initiatives to continue the process	<b>Objective:</b> searching for and selecting business initiatives. <b>Product:</b> business initiatives selected for support	
Enablers Speakers Infrastructure: equipped rooms Teaching Aids Audiovisual aids	Management skills training course with emphasis on environmental projects  Consultative Selling Course	<b>Objective:</b> transferring entrepreneurial skills. <b>Product:</b> Entrepreneurs trained in management skills and consultative selling	
Advisors Infrastructure: equipped rooms, offices	Advice and accompaniment on: Business Diagnostics Business model Market Plan and Commercial Validations Plans: Administrative, Operations, Legal, Financial and Valuation Corporate Image Social accompaniment to strengthen the entrepreneurial team Environmental technical monitoring Business Roundtable Investment Roundtable	<b>Objective:</b> providing support for the creation and strengthening of businesses. <b>Products:</b> Business Diagnostics carried out Formulated business model Market plan formulated and Commercial Validations carried out Drawn up Plans: Administrative, Operations, Legal, Financial and Valuation Designed Corporate Image Entrepreneurial team created Technical environmental monitoring carried out Deals and contacts arranged at Business Roundtables deals and contacts arranged at Investment Roundtables	
Communication and Graphics Advisors	Strategic Plan Media Plan Communication tactics Graphic Pieces Articulation of Environment Secretaries, Mayor's Offices of Valle de Aburra - North Inter-institutional coordination Publishing Articles on the Web - Free Press Radio Broadcasts Outdoor Advertising Communication strategy	<b>Objective:</b> Design and implement a media plan. Strategic Media Plan formulated Media Plan formulated and implemented Communication tactics implemented Graphic pieces made Articulation of Environment Secretaries, Mayor's Offices of Valle de Aburra - North Inter-institutional coordination Publishing Articles on the Web - Free Press Radio Broadcasts Outdoor Advertising Communication strategy	

Source: Authors' own elaboration from the DNP Value Chain represented in Figure 1.



**Table 4. Summary of the Evaluation of Operations**

Aspect assessed	Result and findings
Attention to the target population	The planned outputs were delivered to the beneficiaries as planned as referred to in Table 3.
Direct or indirect results and effects of the policy	321 direct jobs and 1,890 indirect jobs 6,247 tons of non-hazardous waste recovered Alliances and contracts 27 initiatives submitted to other funding sources Awards and accolades
Evaluation of results	Did the effectiveness of the policy make it possible to achieve its objectives? Effectiveness could not be evaluated, but the quality of the products was identified as good; the beneficiaries proposed expanding the themes.  Were there any additional results to those proposed in the objectives? Yes, the program won awards and accolades. In addition, some business deals were arranged at the business and investment roundtables, which was not part of the program.
Assessment of policy design	Did the policy achieve results with the inputs available from the beginning or was it necessary to procure new ones? Availability  Were there any external factors that led to the results? Yes, the experience and contacts of CREAME; yes, the profile and experience of some entrepreneurs.
Source: authors' own elaboration	

to improve the Program are submitted pursuant of the main problems encountered, which imply, in some proposals, engendering norms in accordance with the functions and scope of jurisdiction of the Metropolitan Area of the Valle de Aburrá or escalating to other levels of authority (Table 5).

#### 4. Conclusions and recommendations

Given the current quandaries of climate change on account of pollution, on the one hand, and of unemployment, on the other, as well as the opportunities that the 2030 Global Agenda brings along for the achievement of the Sustainable Development Goals, on top of the options for creating businesses and engendering employment, it is noteworthy to see how these two (2) issues of great interest can converge in a public policy that will translate into benefits not only for those who are accompanied in their business ideas and the creation of their enterprises but also for a broader public due to the benefits that environmental care provides.

In the specific case of the Valle de Aburrá, the environmental problems created by its natural, social and economic conditions

make it necessary to involve several actors to mitigate their impact on the population and on the sustainability of the region in the short, mid and long term. In this vein, the Entrepreneurship for Life Program is a sound public policy, since it not only adds to this objective, but also to the generation of employment sources.

It is important to reckon the variety of ways in which it is possible to contribute to the environment. Thus, the Entrepreneurship for Life Program broadened its initial idea of reducing solid waste to nine (9) lines of action in the period 2012-2015 that still hold up to date, in accordance with the different environmental issues afflicting the region or needing promotion to improve the quality of life of the inhabitants of the Valle de Aburrá.

Due to its nature, the Metropolitan Area does not possess the experience and tools to handle this program; therefore, using outsourcing as the organizational model for handling purposes thereof turns out to be a sound decision. Even more so when the chosen institution is CREAME, given its trajectory, expertise and strategic position in the region's entrepreneurial system. This causes efforts and resources to be better oriented. It can be

<sup>6</sup> French Chamber of Commerce and Industry award to the Valle de Aburrá Metropolitan Area, which highlights the commitment of public institutions to the environment and climate change.

**Table 5. Proposals for improvement of the Entrepreneur for Life Program**

Issues	Improvement Proposal
High number of proposals discarded at different stages of the process	<p>Reviewing and adjusting the selection process for applicants, identifying the "route" leading to the most appropriate selection, thus picking only those who will actually take advantage of the program.</p> <p>Designing the instrument that inquires after the motivations of those enrolled so that it'll be identified from the beginning in order to optimally gear the program and implement other actions with those who have other expectations.</p>
Lack of perception of a direct relationship between the program and the AMVA	<p>Carrying out an induction day at the beginning of the program where Directors and middle management of the Metropolitan Area of the Valle de Aburrá (AMVA) engage actively.</p> <p>Carrying out some activities in the facilities of the AMVA.</p> <p>AMVA as a trainer</p>
There is no follow-up to beneficiaries of the Program	Designing and implementing a scheme for monitoring the entrepreneurs who benefit from the Program in order to identify impacts and effects thereto.
Entrepreneurs find it difficult to introduce their products/services into the market	<p>Explicitly laying out a public policy to support environmental entrepreneurship for the Valle de Aburrá and escalate it to other levels of government. The same for sustainable consumption.</p> <p>Encouraging the consumption of these products/services starting with the public entities themselves, designing a strategy and setting up standards, where appropriate.</p>
Lines of action without proposals	<p>Boosting the lines of action that are less in demand: search for potential entrepreneurs in universities, SENA (National Learning service per its acronym in Spanish), making alliances with other institutions such as Ruta n and private companies.</p> <p>Studying the causes of low participation in some lines of action.</p>
Source: authors' own elaboration	

noted that, beyond the program in particular, there is good communication and synergy among the different institutions involved in promoting entrepreneurship. Nevertheless, it is important not to lose the identity of the program and its origin; in this sense, it was identified to have been associated with CREAME instead of the Metropolitan Area in several scenarios. The Metropolitan Area must reinforce its image in the eyes of the applicants, beneficiaries and other actors involved, for which it is advisable for its directors and officers to engage in some of the activities throughout the Program.

Overall, the quality of the products and services offered by the Program is good, although some entrepreneurs suggest that the topics that may be of interest to all beneficiaries should be broadened, given that some are not of interest to many inasmuch as they already count with previous experience, and only those who are just starting out could take advantage of them.

On the other hand, the processes are well outlined; however, there are bottlenecks particularly represented by a high number of proposals discarded at different stages of the Program for different reasons. Likewise, there are beneficiaries who withdraw before the process is completed. This means that time and resources are wasted on those applicants who come to the program in search for an activity to work for or arrive with a different motivation.

This program produces results in line with its objectives. Nonetheless, there are aspects worthy of adjustments in order to make better use of the resources allocated for their implementation. Thus, for instance, taking into account that the entrepreneur is a fundamental part of the process, a mechanism must be established that allows, at the beginning of the process, to identify those who have the greatest potential to successfully develop their project and set out strategies for those who do not have

that potential, but can be trained to do so, or provide them alternatives that meet their expectations, thus avoiding wasting time and resources on those who turn to the program looking for an activity wherein to become employed. In this regard, it is very useful to know the motivations of those who come seeking support and analyze them in the light of the studies that have been able to clarify the factors that lead entrepreneurs to create and manage environmental companies.

It is necessary to scale up support for environmental entrepreneurs before legislative bodies, whether local, regional or national, so as to achieve a political will that, beyond a temporary incentive, has support become a public policy and builds up standards and other instruments. As such, the philosophy of this entrepreneurship program, a pioneer in Colombia, could be replicated in other regions.

Moreover, in order to promote environmental entrepreneurship specifically, it is necessary to convene the other entities in charge of environmental care, such as Corantioquia and Cornare, which hold jurisdiction over the region; so that this program can be extended to other municipalities and joint efforts can be performed to attain greater coverage and impact.

On the other hand, this policy of supporting environmental entrepreneurship must be complemented by a public policy oriented towards the consumption of “green” or environmentally friendly products and services. To this extent, it is imperative to promote the consumption of such products, whose effect would be, on the one hand, pitching in to environmental protection and improving the quality of life of the population, and on the other hand, supporting the growth of companies and entrepreneurs supported by the program. Public entities should even be the first to consume this type of products to set an example to society, following the guidelines of state contracting for the acquisition of goods and services.

In addition, it is necessary to design a scheme to monitor the entrepreneurs who became beneficiaries of the Program, in order to identify the impacts and effects of

the program in the mid and long term. On a large scale, this program could be capable of making a significant contribution to the achievement of several SDG, which also requires the addition of additional resources.

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