PRINCIPLES FOR RESPONSIBLE INVESTEMENT IN AGRICULTURE AND FOOD SYSTEMS AND THEIR SOCIAL IMPACT: APPLICATION TO UNIVERSITARY PROJECTS

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ABSTRACT

The principles for Responsible Investment in Agriculture and Food Systems (RAI) aim to support food security, nutrition, and the improvement of sustainable livelihoods for smallholders in a responsible and environmentally friendly way. This article analyzes the inclusion of RAI principles in the projects of the Politécnica Salesiana University, Cuenca, in Ecuador, which is complemented with the calculation of the Social Return on Investment (SROI). Among the results, principle 4 was observed as the most applied principle since it enhances the participation and empowerment of young people. The 16 projects applied based on this principle had a total of 24,723 beneficiaries. The key factor of these projects was the integration of young people. It was evidenced how young people, assertively took the leadership, and managed the projects to strengthen human and social development in communities and vulnerable areas. The NPV calculated for the projects under principle 4 showed an NPV of $5,039.15, and an SROI of 24.19. The overall result of the NPV of all university projects was $ 10,957.39 and an SROI of 38.38.

Keywords: Committee on World Security, Food and Agriculture Organization, Principles for Responsible Investment in Agriculture and Food Systems, Return on Investment, Deadweight, Attribution, Drop off, Impact and Net Present Value.

INTRODUCTION

In 1974, the Committee on World Food Security (CFS) was established as an intergovernmental entity to serve as a forum for food security policy research and outreach in conjunction with the Food and Agriculture Organization of the United Nations (FAO), which is leading international efforts to end hunger, with the objective of achieving food security for all people, while ensuring regular access to sufficient and good quality food for an active and healthy life (FAO, 2019). The CFS is the main inclusive international and intergovernmental platform for the collaboration of all stakeholders to ensure food security and nutrition. This committee reports to the United Nations General Assembly through the United Nations Economic and Social Council (ECOSOC) and the Food and Agriculture Organization of the United Nations (FAO) Conference (Comité de Seguridad Alimentaria Mundial, 2014). The CFS establishes on October 15, 2014 the Principles for Responsible Investment in Agriculture and Food Systems (RAI Principles) to encourage responsible investment in agriculture and food systems that contributes to food security and nutrition and thereby supports the progressive

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realization of the right to adequate food in the context of national food security". (Comité de Seguridad Alimentaria Mundial, 2014).

Table 1 shows the RAI Principles and their social approach.

Table 1
PRINCIPLES FOR RESPONSIBLE INVESTMENT IN AGRICULTURE AND FOOD SYSTEMS

Nº	Title of principle
Principle 1	Contribute to food security and nutrition.
Principle 2	Contribute to sustainable and inclusive economic development and the eradication of poverty.
Principle 3	Foster gender equality and women's empowerment.
Principle 4	Engage and empower youth.
Principle 5	Respect tenure of land, fisheries and forests, and access to water.
Principle 6	Conserve and sustainably manage natural resources, increase resilience, and reduce disaster risk.
Principle 7	Respect cultural heritage and traditional knowledge and support diversity and innovation.
Principle 8	Promote safe and healthy agriculture and food systems.
Principle 9	Incorporate inclusive and transparent governance structures, processes, and grievance mechanisms.
Principle 10	Assess and address impacts and promote accountability.

Source: Authors' elaboration based on Committee on World Food Security (2014).

There are entities that contribute to the full implementation of the RAI Principles involving research organizations, universities, academic institutions and schools, agricultural training centers and extension organizations or programs, as FAO operates in more than 130 countries and is available for collective participation in building a cooperative food culture (Martínez & Padilla, 2020). That is why these institutions are responsible for integrating RAI principles into their own policies, promoting knowledge, exchanges, and capacities, thus generating innovation to increase the contribution of smallholder farmers to food security and nutrition(Comité de Seguridad Alimentaria Mundial, 2014).

The RAI Principles involve the university as one of its stakeholders. The university, as a house of learning, would be willing to provide lectures and presentations on the misuse of food systems and poor investment in the agricultural sector. This is how Politécnica Salesiana University supports values and human rights to be known and respected by its students to contribute to food security and nutrition.

Throughout the world, universities support this change in society that has generated a great impact on humanity, through activities that involve all interested parties to collaborate and establish networks at local, regional, and national levels (Comité de Seguridad Alimentaria Mundial, 2014). Such is the case of Politécnica Salesiana University that since 2011 together with the GESPLAN research group of the Politécnica de Madrid University has been working on various researches and teaching activities (GESPLAN UPM, 2016).

With the integration of all universities, organizations, institutions, and other support subjects, it will be possible to reduce or eradicate hunger and poverty that haunts the planet today. Undoubtedly, with adequate investment and food security for those who need it, malnutrition can be reduced from 1.5 to 2 billion people around the world who live under an unsatisfactory diet to keep them satisfied all day (Comité de Seguridad Alimentaria Mundial, 2014).

To measure the contribution of the Politécnica Salesiana University's social outreach projects to RAI Principles, a descriptive analysis was conducted and then the social impact of these projects was calculated.

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METHODOLOGY

Based on the 10 RAI Principles, 100 projects of engagement with society executed by Politécnica Salesiana University, Cuenca headquarters in 2018 were evaluated. From this database, only the projects that had start and end reports were selected, which reduced the total to 53 projects manifested in Table 2.

Table 2
ENGAGEMENT WITH SOCIETY PROJECTS BY POLITÉCNICA SALESIANA UNIVERSITY, CUENCA HEADQUARTERS

Majors	Total per major	Percentage
Business Administration	10	19%
Resource Biotechnology	3	6%
Social Communication	1	2%
Accounting and Auditing	6	11%
Risks and Disasters Management	1	2%
Local Development Management	1	2%
Environmental Engineering	1	2%
System Engineering	6	11%
Industrial Engineering	1	2%
Mechanical Engineering	2	4%
Automotive Engineering	12	23%
Mechatronic Engineering	2	4%
Veterinary Medicine and Zootechnics	3	6%
Pedagogy, Early Childhood Education, Basic Education	1	2%
Labor Psychology	1	2%
Telecommunications	2	4%
Total projects	53	100%

Source: Authors' elaboration based on the report of the Department of Engagement with Society (2018).

The database of the projects carried out was completed with qualitative and quantitative variables related to the RAI Principles. Among these variables, the category of the type of activity developed by each major was created, such as: Christmas party, training, congress, construction of devices, creation of an event, courses, maintenance, health, pre-professional internships, and tutorials. With this information, a descriptive analysis was carried out by means of frequency tables and summary graphs. Descriptive analysis is understood as making a synthesis of the information with precision, simplicity and clarifying and ordering the data (Epidat 4, 2014).

The social impact, known as SROI, involved the use of the procedures mentioned in Table 3.

Table 3
STEPS TO CALCULATE SROI

Steps	Description
1	Establish the scope of action and identify stakeholders.
2	Draw the impact map, in accordance with the theory of change, identifying the resources, results and impacts of the activity or undertaking.
3	Evidencing the impacts and giving them a value, looking for the data that show whether a certain impact has been achieved and putting a value on them.
4	Determine the impact once the mitigation factors have been deducted.

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5	Calculate the SROI, adding up all the benefits and subtracting all the negatives and comparing the results with the investment.
6	Report, use and integrate the tool into organizational processes. This fundamental step is the one that companies tend to pay less attention to.

Source: Social impact measurement tools taken from FUOC. Fundació per a la Universitat Oberta de Catalunya.

RESULTS AND DISCUSSION

The results are presented in two sections: 1) Descriptive analysis of the variables related to the RAI Principles. 2) Measurement of the return on social investment of the projects of engagement with society.

Descriptive Analysis

The major that has carried out the most projects was Automotive Engineering. Its projects were based on training, development of an engine, vehicle maintenance, pre-professional internships and tutoring for children, young people, adults, and students.

Table 4
PERCENTAGE DESCRIPTION OF PROJECTS IMPLEMENTED

Type of project	Percentage of application
Christmas Party	2%
Training	62%
Congresses	2%
Device construction	2%
Computer courses	2%
Design	2%
Motor manufacturing	2%
Sterilization	4%
Events	4%
University Extension	2%
Vehicle Maintenance	2%
Diabetes Monitoring	2%
Plant Propagation Project	2%
Pre-professional Internships	4%
Magazine	2%
Tutorials	6%
Total	**100%**

Source: Authors' elaboration based on the report of the Department of Engagement with Society.

Table 4 shows the percentage of application in the different fields that the outreach projects focused on. As evident, the training field was the one that was the most provided in the projects of engagement with society, which resulted in a 62% of application. The university majors have provided training projects to society on topics such as: awareness training, forestry, risk assessment in schools, training in strengthening human development or missions in rural and low-income areas, accounting and tax training, and financial training. The Business Administration major was the one that had the need for a high monetary investment to provide training, the co-authors of these projects conducted training outside the city, involving expenses for transportation, lodging, food and utensils for the proper development of their activities.

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Table 5
CATEGORIES AND THEIR CORRESPONDING BENEFICIARIES

Category	Number of Beneficiaries	Percentage
Christmas party	700	1,2%
Training	55381	94,6%
Congress	150	0,3%
Device construction	34	0,1%
Events	500	0,9%
Course	24	0,04%
Design	130	0,2%
Magazine	Undetermined	Undetermined
Motor manufacturing	50	0,1%
Sterilization	220	0,4%
University extension	16	0,03%
Vehicle maintenance	208	0,4%
Diabetes monitoring	200	0,3%
Pre-professional internships	773	1,3%
Plant propagation project	20	0,3%
Tutoring	165	0,3%
Total	**58571**	**100%**

Source: Authors' elaboration based on report of the Department of Engagement with Society.

In Table 5, the Training category was the most used by each major; this created a positive impact on many beneficiaries, which in this case were children, young people, and adults of different genders. All training was planned and evaluated to corroborate the goal established in the project. The university students were able to demonstrate their skills, to communicate or transmit the established objective, along with good attitudes and impeccable conduct to obtain an effective result. The next most applied category is the Monitoring of patients with diabetes carried out by the Telecommunications major. It was based on keeping track of the attendance of people with diabetes to events in the province of Azuay. The University Extension category does not require the investment of large resources, since most of these extensions are carried out within the university. Regarding the number of beneficiaries, whether they are children, youth, or adults, they obtained a positive impact with the different trainings, lectures, tutoring, among other categories for their future benefit.

The leading major was Business Administration with a total of 16645 beneficiaries who were provided with knowledge and leadership strategies, family support and social awareness. In second place is the Automotive Engineering major with a total of 14907 beneficiaries who also received training in leadership strategies, family accompaniment and social awareness.

After examining the projects submitted by the Politécnica Salesiana University, the RAI principles that were applied in each of the previously mentioned projects were analyzed. Of the 53 projects analyzed, only 30 of them complied with some of the RAI principles established by FAO. Table 6 summarizes these results.

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Table 6
PRINCIPLES APPLIED IN PROJECTS CARRIED OUT BY POLITÉCNICA SALESIANA UNIVERSITY, CUENCA HEADQUARTERS

Principles		Percentage of projects under RAI Principles	Beneficiaries
Principle 2	Contribute to sustainable and inclusive economic development and poverty eradication.	10,00%	1100
Principle 4	Enhance youth participation and empowerment.	53,33%	24723
Principle 5	Respect land tenure, fisheries and forests, and access to water.	16,67%	4300
Principle 7	Respect cultural heritage and traditional knowledge and support diversity and innovation.	16,67%	1008
Principle 8	Promote safe and healthy agricultural and food systems.	3,33%	100
		100,00%	31231

Source: Authors' elaboration based on report of the Department of Engagement with Society.

Principle 2: Contribute to sustainable and inclusive economic development and poverty eradication, which aims to promote rural development, expand the coverage of social protection, and provide public products and services such as research, health, education, capacity building, finance, infrastructure, and market operations, and promote rural institutions(Comité de Seguridad Alimentaria Mundial, 2014).

The Accounting and Auditing Major projects were based on teaching finance applicable to business and human daily life. These were given to participants who wished to improve their economic condition and to promote sustainable development for a good management of monetary funds. One of the projects taught by the Accounting and Auditing Major focused on finance and integrated traditional and scientific knowledge with the best practices and technologies through different approaches such as agroecological approaches and sustainable intensification (Comité de Seguridad Alimentaria Mundial, 2020).

As part of this principle, university students were trained to teach the rest of the students about finances and their environment. We also had the participation of 170 children who were given financial classes, according to their age. In addition, they were taught about concepts to generate in them a culture of saving. No adults participated in this type of project because most of the older adults are retired and have their programmed savings. RAI Principles contributes to the United Nations objective of promoting decent work and economic growth (FAO, 2020).

Principle 4: Enhance youth participation and empowerment. One of its objectives is based on providing training, education, and consulting programs suitable for young people to improve their skills or gain business opportunities and decent employment and promote their local development (Comité de Seguridad Alimentaria Mundial, 2014). It also promotes young people to be able to exercise their autonomy from empowerment (Codajic.org, 2011). Young university students from different majors were involved: Business Administration, Accounting and Auditing, Management for Local Development, Automotive Engineering, Mechatronics Engineering and Labour Psychology. The implementation of the related university projects covered 24723 beneficiaries from the most vulnerable sectors of Azuay, including young people, children, and the elderly. Missions, interventions, training, English courses, and teacher training were carried out.

Principle 5: Respect tenure of land, fisheries, forests, and access to water. Its main objective is to protect tenure of land, forests, fisheries within the scope of national food security (Comité de Seguridad Alimentaria Mundial, 2014). The participation of young university

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students from the majors of: Biotechnology of Natural Resources, Business Administration, Industrial Engineering and Environmental Engineering was included, who focused on the awareness, forestation, and risk assessment projects. These projects were carried out with the support of students who were trained in environmental issues, under the premise that safeguarding tenure rights improves the overall environment for investments and promotes their growth (FAO, 2019). A total of 50 children and 15 adults participated in these projects, and more than 100 trees were planted.

Principle 7: Respect cultural heritage, traditional knowledge, support diversity and innovation. This principle refers to respecting cultural heritage sites, including traditional practices, illustrations, and technologies, and recognizing local communities and indigenous peoples in agriculture and the food system (Comité de Seguridad Alimentaria Mundial, 2014). Smart ecosystem tools were assessed in these projects; this principle is about innovating existing products and turning them into something that fits the present.

Finally, within Principle 8: Promote safe and healthy agricultural and food systems, its main objective is to improve agricultural products and their inputs and outputs to increase production efficiency and to reduce coercion to the environment, animal, plant, human health, and occupational hazards (Comité de Seguridad Alimentaria Mundial, 2014). The Resource Biotechnology Major supported this principle by generating biodigester creation project. These are organic waste deposits in agricultural production due to their advantages such as reducing the pollutant load, improving the fertilization capacity of materials, eliminating unpleasant odors, and producing natural gas, called biogas, which can easily replace natural gas. The complexity of the current challenges related to the agricultural sector and nutritional health demand a coherent and integrated response that brings together the agendas of family farming, food security, human health care and nutrition (Sustainable Development Goals Fund, 2015). This project was carried out with the participation of professors specialized in bio-managers and students. This project benefited 100 people.

Calculation of SROI

SROI is a method that:

> *Is based on the logic of the popular return on investment or ROI (return on investment), which compares the benefit or utility achieved in relation to the investment made. Also, it strives to reduce inequality and environmental degradation, and improve society, environment and social welfare by combining economic costs and benefits.* (Robin, 2019, pág. 33)

At the same time, it ensures how to make a difference by measuring social, environmental, and economic outcomes, and use monetary terms to represent the results (Foretica.org, 2018). The SROI has been used by a variety of non-profit (or voluntary) organizations to assess the impact of companies on their stakeholders through social, environmental, and economic outcomes using monetary terms to represent them (Foretica.org, 2017).

The next step is the process for calculating the SROI.

Establishing the scope of action and identifying stakeholders

It is important to be clear about what the SROI will cover to define who will participate in this process and how it will function. This considered the target audience, the background, the

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available resources, the responsible persons, the approach, the time to be studied and the type of process involved in planning, monitoring, or evaluation (Robin, 2019).

To begin with the calculation of the SROI, the beneficiaries of the projects and their goals established or achieved at the end were identified. The projects were split into 16 categories, as presented in Tables 2 and 3, with a total of 58,571 beneficiaries.

Draw the impact map, according to the theory of change, identifying resources, outcomes and impacts of the activity or venture and using clear indicators.

Table 7 shows as an example an impact map of 3 projects mentioned in Table 6. These projects are the same ones that will be applied to prove all the steps for the SROI calculation.

Table 7
IMPACT MAP

Established goals	Output	Outcome
To implement five sustainable harvesting plans for vegetable species.	Direct beneficiaries: 20 people	Plans drawn up according to the selected vegetable species.
To train young college students in accounting and tax strategies.	Direct beneficiaries: 170 people	40 hours of workshop with the population on accounting and tax training.
To train young college students in leadership strategies, family accompaniment and social awareness.	Direct beneficiaries: 800 people	Educational Pedagogy training workshop held. Animals sterilized to reduce the stray population.

Source: Authors' elaboration based on the report of the Department of Engagement with Society

Evidencing the impacts and giving them value

All the projects submitted by the Department of Engagement with Society included a final percentage of project completion, which made it easier to evaluate them. Table 8 shows the impact and value of three projects taken as examples.

Table 8
EVIDENCE OF IMPACTS AND THEIR VALUE

Goal Value	Goal Established	Total number of beneficiaries	Indicators
Project: Sustainable use of natural resources of Tambillo Protective Forest by applying biotechnological principles.			
100%	Five sustainable harvesting plans for vegetables species	20	Number of hierarchized projects
Project: Finance Club: accounting and tax training: Decentralized Autonomous Government of El Cabo-Paute, July 2018.			
100%	Young college students trained in accounting and tax strategies	170	Trained students Trained communities
Project: Human and social development in vulnerable communities and areas (missions): Nuestra Señora del Cisne parish in Nabón Ups-Cuenca 2018: Third intervention.			
90%	Young college students trained in leadership strategies, family guidance and social awareness.	800	Trained students Trained communities

Source: Author's elaboration based on the report of the Department of Engagement with Society

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Determine the Impact

Once the mitigation factors have been deduced, a mathematical operation is used to determine the impact. Based on step 3, the impact determination is explained. Some percentages were considered, for Deadweight 10% of the total spent was extracted and for Attribution 40% of the total spent on the ongoing project was extracted, as shown in Table 9.

Table 9
CALCULATION OF IMPACT
(expressed in dollars)

Total budget	Total spent	Deadweight	Attribution	Impact
5.960,00	5.460,00	5.460,00*(10%) = 546,00	5.460,00 *(40%) = 2.184,00	5.960,00 - 546,00 - 2.184,00= 3.230,00
1.359,50	1.359,50	1.359,50*(10%) = 135,95	1.359,50*(40%) = 543,80	1.359,50 - 135,95 - $ 543,80= 679,75
13.315,80	12.422,64	12.422,64*(10%) = 1.242,26	12.422,64*(40%) = 4.969,06	13.315,80 - 1.242,26 - 4.969,06= 7.104,48

Source: Author's elaboration based on the report of the Department of Engagement with Society.

SROI Calculation

All benefits are added up, all costs are subtracted, and this result is compared with the investment (Robin, 2019). For the Drop off a percentage between 0.05% to 2% was considered, which refers to how likely the direct beneficiaries, whether children, youth or adults, tend to forget what they have learned or lose the benefits received through the projects. For the calculation of Impact, a subtraction of Total Budget less Deadweight and less Attribution was made. The calculation of NPV was made by dividing the Impact for the Time of the project either weeks, days, months or years and by subtracting the Attribution. For the SROI calculation, a NPV break down was performed for the investment. These calculations are shown in Table 10.

Table 10
SROI

Total budget	Total spent	Major	Deadweight	Attribution	Drop Off	Impact	NPV	ROI
$ 5.960,00	$ 5.460,00	Biotechnology of Resources	$ 546,00	$ 2.184,00	0,05 %	$ 3.230,00	$ 1.025,82	0,06
$ 1.359,50	$ 1.359,50	Accounting and Auditing	$ 135,95	$ 543,80	1,50 %	$ 679,75	$ 83,08	0,13
$ 13.315,80	$ 12.422,64	Veterinary Medicine	$ 1.242,26	$ 4.969,06	1,50 %	$ 7.104,48	$ 1.826,59	0,29

Source: Author's elaboration based on the report of Department of Engagement with Society.

The application of the process to measure the social return, shown in Tables 7 and 10, to all the projects of the Department of Engagement with Society at Politecnica Salesiana University shows an overall NPV of $ 10,957.39 and an SROI of 38.38, which means that for every dollar invested in the projects, a benefit of $38 is achieved.

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Table 11 shows the NPV and SROI results by major. The Business Administration faculty obtained a higher positive score for both NPV and SROI despite the fact that they had additional expenses such as transportation, lodging, food and the purchase of utensils to give the lectures and trainings.

Table 11
RESULTS VAN AND SROI BY MAJOR

Faculty	VAN	SROI
Business Administration	$ 9.284,34	21,36
Resource Biotechnology	$ -2.548,76	0,43
Social Communication	$ 64,05	0,42
Accounting and Auditing	$ -6.307,11	1,47
Risk and Disaster Management	$ 4.005,52	4,42
Local Development Management	$ 559,29	0,42
Environmental Engineering	$ 439,20	0,21
Systems Engineering	$ -23.359,59	0,09
Industrial Engineering	$ 329,18	0,21
Mechanical Engineering	$ 1.316,81	1,19
Automotive Engineering	$ 4.343,35	5,38
Mechatronics Engineering	$ -10.123,68	-0,76
Veterinary Medicine	$ 4.304,84	2,21
Pedagogy	$ 1.863,94	0,34
Labour Psychology	$ 37,59	0,42
Telecommunications	$ 4.833,64	0,59
Total	$ -10.957,39	38,38

Source: Author's elaboration based on the report of the Department of Engagement with Society.

Finally, the calculation of these two variables was applied to the types of projects that each major presented to the Department of Engagement with Society. Table 12 shows that the project which obtained the highest NPV and positive SROI was the creation of an event, which means that for each dollar invested, a return of 4.84 dollars was obtained. On the other hand, the training category obtained a negative NPV because the expenses were higher than the income but a positive social return.

Table 12
RESULT VAN AND SROI BY TYPE OF PROJECT

Category	NPV	SROI
Christmas party	$ 216,52	0,38
Elderly Adults	$ 2.357,40	0,32
Training	$ -31.114,38	24,39
Congress	$ 1.863,94	0,34
Team building	$ 1.317,71	0,28
Creation of an event	$ 4.564,81	4,84
Creation of an engine	$ 411,86	0,42
Computer course	$ 261,89	1,28
Designing of a module	$ 181,05	0,31
Creation of a magazine	$ 64,05	0,42
Sterilization	$ 2.605,50	1,93
University extension	$ 37,59	0,42
Vehicle maintenance	$ 950,22	0,60
Non-invasive diabetes method	$ 2.476,25	0,27

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Pre-professional internships	$ 8,17	0,74
Plant propagation project	$ 1.025,82	0,06
Tutoring	$ 1.814,22	1,40
Total	**$ -10.957,39**	**38,38**

Source: Author's elaboration based on the report of the Department of Engagement with Society.

Universities are one of the organizations that should promote the application of the RAI Principles, to contribute to food sovereignty in the world. According to the literature reviewed, the Polytechnic University of Madrid is one of the universities that most applies the RAI Principles, in 2016 it applied 4 practical cases in which they promoted between 5 and 8 principles (GESPLAN UPM, 2016).

In this context, the Politécnica Salesiana University, despite its advances in application, needs to demonstrate a greater effort to promote the RAI Principles in each of its projects. In this way, both students and multiple beneficiaries could achieve greater benefits and contribute to the global goal of eradicating world hunger and achieving food security. Situation defined by (Urquía, 2014). as a state where access to the necessary, safe, and nutritious food for a healthy life would be always guaranteed for all people. It is expected that with this process of inclusion, training and practical research, the participants in these projects will appropriate basic knowledge and contribute to its dissemination and application (Martínez & Padilla-Delgado, 2020).

Universities in Ecuador should be especially interested in promoting the development of the RAI Principles, because Ecuador is a country where agriculture is the main strategic axis (Menéndez, 2015). Developing countries, such as Ecuador, require a special incentive for the search for food security since there are families that can be considered peasant settlers and that, in some way, even partially, live off the field, but the reality is 84% of family farms cover less than two hectares and occupy only 12% of the agricultural area, which means that the majority of family farmers are poor (Carmona et al., 2017) and about 75% of the total of family farming productive units (Hernández-Beltrán León-Orellana et al., 2019) that are being affected by food insecurity.

This situation in the country is compounded by the reality that students in the morning hours in most cases do not eat breakfast and choose to eat foods with a low nutritional level in the middle of the morning. This situation clearly indicates that the promotion of good nutrition is required (Mirabá, 2016). Today's society shows a prevalence of overweight and obesity in children, adolescents, and adults; This malnutrition prevents the correct physical and intellectual development of the individual, since it increases the risk of chronic non-communicable diseases, with great direct and indirect costs for families and society (Urquía, 2014).

CONCLUSION

The RAI Principles are of great relevance within universities since they promote positive changes in students and beneficiaries. They allow students to become aware of their responsibility not only as professionals but as people with values and concerned about the general well-being of all of society. It allows the multiple beneficiaries to continue growing both intellectually and economically, generating sources of income, especially for people who for some reason could not access a formal education. Thus, demonstrating that food security is not limited to the market and cannot depend on it, since it transcends the economic sphere and becomes a political problem (Machado, 2003).

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This research indicated the application of the RAI Principles in the projects of connection with the society of the Politécnica Salesiana University, showing that only 35% of the applied projects are related to the RAI Principles. The most applied principle is 4: " Engage and empower youth" to which more than 50% of the projects correspond. Demonstrating the interest of this University to promote youth participation in issues of global relevance. The calculated NPV of the projects within Principle 4 produced an NPV of $ 5,039.15 and a SROI of 24.19 times. The overall result of the NPV was $ 10,957.39 and a SROI of 38.38 times, which means that the social return is $ 38.38 for every dollar invested in the project.

For future research, it would be interesting to know the evolution of the application of the RAI Principles and to make a comparative analysis between universities. It would also be interesting to analyze and compare various methodologies for measuring the impact of the application of the RAI principles by universities.

REFERENCES

Silva, J.L.C., Sánchez, J.A.P., & Sánchez, A.P. (2017). The Latin American and Caribbean Food Security Scale (ELCSA): A reliable tool to measure lack of access to food / The Latin American and Caribbean Food Security Scale (ELCSA): a reliable tool to measure lack of access to food. *RICSH Ibero-American Journal of Social and Humanistic Sciences*, *6*(11), 263-286.

Borile, M.E. (2011). Youth empowerment and participation. In 12th Virtual Congress of Psychiatry. Interpsiquis 2011.

Pérez Tejedor, M.M. (2016). Analysis of food security from the proposal of the public policies of Mercosur in the period 1998-2014.

La Vinculación, D.L.P.P., Los Mercados, C.O.N., & De Antecedentes, D.O.C.U.M.E.N.T.O. World food security committee.

Gonzales-Gonzales, C., Deza Becerra, F., León Jiménez, F., & Poma Ortiz, J. (2014). Hipotiroidismo subclínico, depresión y deterioro cognitivo: experiencia en un centro de adultos mayores de Lambayeque. In Anales de la Facultad de Medicina (Vol. 75, No. 4, pp. 327-330). UNMSM. Facultad de Medicina.

Soza Méndez, J.R. (2019). The Role of the Food and Agriculture Organization of the United Nations (FAO) in the fight against poverty from the point of view of Food and Nutritional security in the Pacific zone of Nicaragua 2015-2017 (Doctoral dissertation, Universidad Nacional Autónoma de Nicaragua , Managua).

González Pesántez, D., & Portocarrero Márquez, L.C. (2019). Environmental education under the IAR-FAO principles in five educational institutions in the historic center of Cuenca and determination of pollutants (PB, E. Coli and CO2) in urban agriculture (vegetables and ornamentals) (Bachelor's thesis).

Villacob Lugo, I. Marco conceptual de los sistemas alimentarios sostenibles y seguridad alimentaria de América latina y el Caribe. Una revisión de literatura.

Armenta, M.A., & Morales, C.G.B. (2017). El retorno social de inversión de una empresa social agrícola en el sur de Sonora. *Revista Mexicana de Agronegocios, 41*, 660-669.

Trujillo, R., Gómez, A., & Canales, R. (2018). Midiendo el Valor del Impacto Social Empresarial; Guía de Herramientas de Medición y Valoración del Impacto Social Empresarial. Recuperado de: https://www. foretica. org/midiendo_el_valo_del_impacto_social_empresari al. pdf.

Garcés, J.M., & Padilla-Delgado, L.M. Inversión responsable en la agricultura. Diagnóstico en zona afectada por conflicto armado en Colombia Responsible investment in agriculture. Diagnosis in area affected by armed conflict in Colombia.

Hernandez-Beltran, Y., Leon-Orellana, N.A., Valdes-Paneca, G.R., Ledesma-Plasencia, M.L., & Mirabales-Rodriguez, P.D. (2019). Family agriculture and food security in a farm of the Sancti Spiritus municipality. Pastos y Forrajes, 42(2), 170-177.

Machado, A. (2003). Ensayos sobre seguridad alimentaria. Univ. Nacional de Colombia.

Garcés, J.M., & Padilla-Delgado, L.M. (2020). Inversión responsable en la agricultura. Diagnóstico en zona afectada por conflicto armado en Colombia. *Revista Sinapsis*, *12*(1), 1-11.

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Menéndez Rexach, Á. (2015). Legal studies on food safety. Martial pons.
Mirabá Ladines, G.L. (2016). Eating habits of young university students in the city of Guayaquil.
Robin, S. (2021). Social impact measurement tools, February 2012.
Gualdrón García, P.A. Sovereignty and food security in two villages of the municipality of La Macarena-Meta: characterization of the availability, access and consumption components.
Urquía-Fernández, N. (2014). Food security in Mexico. *Public Health of Mexico, 56*, 92-98.

Citation Information: Buele, I., Zuniga, D., & Tobar, L. (2021). Principles for responsible investment in agriculture and food systems and their social impact: application to University projects. *Academy of Entrepreneurship Journal (AEJ), 27*(4), 1-13.