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D1.3 Analysis of the current training paths in resource management and sustainability in Colombia, Costa Rica and West Indies in order to identify available good practices, crucial points and weaknesses

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Project full title	Sustainable Tourism, Optimal Resource and Environmental Management
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Abstract	The current training paths in in participating PC countries (Colombia, Costa Rica and West Indies) are analysed in order to achieve a review of what is already existing in terms of current training paths about Sustainable Tourism and Resource Management in institutions, academic institutes and universities to identify the strategic needs to be taken into account.
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DOCUMENT CONTROL SHEET

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EXECUTIVE SUMMARY

1. Current Training Paths in Sustainable Tourism & Resource Management and in the Caribbean 7

This first part analyses the existing Caribbean Training Paths in Sustainable Tourism and Resource Management, examining the differences between the offers. It also analyse the social dimension of Sustainable Tourism and Resource Management in those Training paths.

2. National programs in Colombia..... 20

This second part analyses the existing Colombian Training paths in Sustainable Tourism and Resource Management, examining the differences between institutions, undergraduate programs and master degrees. It focuses on their components in sustainability.

3. National programs in Costa Rica 20

This third part shows some of the regional programs related with resources management in tourism both in Latin-American and in Costa Rica.

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1. Current Training Paths in Sustainable Tourism & Resource Management and in the Caribbean

Caribbean communities, like those across the globe, are today facing profound environmental challenges such as land surface transformation, biodiversity loss, depletion of natural resources, climate change, greater vulnerability to natural hazards, and terrestrial and marine pollution – most of which are largely driven by human activities. Since the region's small island developing states (SIDS) are highly dependent on a limited range of natural resources and fragile coastal and marine ecosystems for their socio-economic development, the need to safeguard these assets and systems through precise actions is more pressing than ever. Education is seen as one of the key solutions for addressing environmental issues.

Education, particularly at the tertiary level, is a major aspect in the development of modern society; laying a foundation for economic wealth, social prosperity and political stability (Raut, 2014). Higher education is influential in bringing about societal changes due to its ability to help formulate good decision making in areas such as business, politics and science (Browne & Shen, 2017). In the English-speaking Caribbean, the University of the West Indies (UWI) is the largest and longest standing higher education provider. With four campuses that serve diverse communities across the Caribbean, the UWI offers undergraduate and postgraduate certificate, diploma and degree options in Engineering, Humanities and Education, Law, Medical Sciences, Pure and Applied Sciences, Science and Agriculture, and Social Sciences. The four campuses are Cave Hill in Barbados, Mona in Jamaica, St. Augustine in Trinidad and Tobago, and the Open Campus (42 site locations, serving 16 countries) (UWI, 2019). Besides the UWI, there are a number of accredited educational institutions in the region, including international privately-owned medical faculties. **Table 1** provides a snapshot of the demographics, key sectors, tuition costs, and higher education options available in some Caribbean Community (CARICOM) Member States. It should be noted that as it pertains to



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demographics, the gender ratio is 2:1 academically in favour of women. In the Caribbean, women have outperformed their male counterparts, from the primary to tertiary levels. Also, there is some fluctuation in the participation of the poorest quartile in higher-education; for instance, in 2009 participation fluctuated between 27% and 2% among the countries in the region (Browne & Shen, 2017).

Table 1: Demographics and cost of higher education in CARICOM Member States

Country	Population	Main Industry	Type of College/University	Tuition Range (XCD\$)	College/Universities	
					Public	Private
Anguilla	14,614	Tourism, Boat building	Community, Medicine	\$11,000-\$41,000	1	3
Antigua & Barbuda	91,818	Tourism, Construction	Technology Institute, Medicine	\$3,750-\$512,000	3	3
Dominica	71,293	Tourism, Soap, Coconut Oil	Community, Medicine	\$1,935-\$458,419	1	5
Grenada	107,327	Export (Nutmeg, Bananas), Tourism	Community, Medicine, Veterinary	\$2,600-\$364,189	1	3
Montserrat	6,409	Tourism	Community, UWI Open Campus	\$3,500-\$5,400	1	
St. Kitts & Nevis	55,572	Tourism, Cotton, Cement	Medicine, Veterinary	\$1,750-\$127,000	1	3
St. Lucia	184,999	Tourism, Agriculture	Medicine, Veterinary	\$1,375-\$486,000	1	5
St. Vincent & the Grenadines	109,462	Tourism, Food Processing	Community, Medicine	\$5,250-\$180,900	1	2



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Country	Population	Main Industry	Type of College/	Tuition Range (XCD\$)	College/Universities	
			University		Public	Private
British Virgin Islands	31,148	Tourism	Technology Institute, Medicine	\$10,000-\$26,730	1	

1.1. Importance of Sustainable Tourism & Resource Management Training Programmes
As **Table 1** helps illustrate, the Caribbean region is highly dependent on tourism (currently packaged and marketed as the three S's: sun, sand and sea) for economic advancement. This is particularly true for islands such as Anguilla, Antigua and Barbuda, Bahamas, Barbados, and St. Kitts and Nevis where tourism can contribute over 37% of gross domestic product (GDP) (Charles, 2013). In 2017, direct contribution of travel and tourism to Caribbean GDP was USD\$17.9bn, and this is slated to rise to USD\$26.5bn in 2028. The sector also supported 758,000 jobs (4.3% of total employment) in 2017 (WTTC, 2018). However, Caribbean tourism, much of which is concentrated in coastal areas and relies on environmental quality, is acutely vulnerable to climate change, natural hazards, and environmental degradation. Moreover, this traditional form of tourism has been shown to negatively impact destinations. As Charles (2013, p. 151) observes, "tourism and the environment can be compliments, or adversaries". On the one hand, tourism can be a vehicle for the preservation of natural and cultural assets; but if not properly developed and managed, can contribute to habitat destruction and biodiversity loss, overconsumption of scarce resources, increased pollution, and the emission of greenhouse gases. Therefore, if the region is to continue to benefit from tourism, it must find ways to integrate sustainability in the sector.

Sustainable tourism has the potential to contribute to local development, while protecting the natural environment and cultural heritage. It can provide destinations with a competitive edge, tapping into the growing 'green' travel market. But current and future tourism professionals must possess different skills, attitudes and



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knowledge if they are to integrate sustainability into the sector, adapt to a changing environment and become effective leaders. Higher education institutions play a crucial role in the preparation of citizens and professionals who can address the environmental challenges of the 21st Century. Through their curricular design, research and outreach, universities are key agents for advancing sustainable development (Hatipoglu, Ertuna, & Sasidharan, 2014; Raut, 2014). However, although sustainability is high on the global agenda, it is only slowly receiving attention within tourism and hospitality curriculums. For instance, a survey of hospitality educators, primarily from the United States, revealed that while respondents valued sustainability, it was not taught on a consistent basis in courses (Deale & Barber, 2010).

1.2. Analysis of Caribbean Training Paths in Sustainable Tourism & Resource Management

A high-level analysis of CARICOM educational institutions that offer undergraduate (Bachelors level) and graduate (Masters level) programmes in tourism and resource management was undertaken. The study revealed that out of the thirty (30) training paths identified, 57% of programmes were offered by the UWI, across its four campuses, and 43% at other accredited educational institutions. Approximately, 60% of programmes was at the Bachelors level, with a duration of 3 to 4 years (full-time); and 40% was at the Masters level. The majority of the Masters programmes (83%) were facilitated by the UWI, and ranged in duration between 1 to 2 years (full-time). **Table 2** provides an overview of the programmes.

Although 53% of the programmes identified were tourism-related, none of them were dedicated to sustainable tourism. With that said, most of these programmes (75%) did include a course on sustainable tourism (see Box 1) – even though in 25% of the cases, the course was an elective. This finding corroborates the assertions that, as yet, sustainability is not commonly or consistently integrated into the tourism and

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hospitality management curriculum, even though educators recognise its importance (Deale & Barber, 2010).

Box 1: Example of a Sustainable Tourism Course

In the *MSc Tourism & Hospitality Management* programme offered by UWI-Mona Campus, students complete the course **MGMT 6126: Sustainable Tourism Management**. This course introduces the principles of sustainable development, provide an understanding of the social, economic and environmental issues that will determine the future of tourism in the Caribbean, and impart the skills needed to develop and manage the industry on a more sustainable basis in the years ahead. The course also introduces students to methods for planning, developing, financing and managing tourism products within a framework of sustainable development, including attraction management, marketing and specialist operations such as eco-tourism.

On the other hand, all the programmes related to environmental studies and natural resources management (47% of the study), covered a general range of topics including climate change, biodiversity, and socio-ecological systems. However, only 36% of programmes could be said to be dedicated to resource management, and 14% included a course on sustainable tourism (i.e. MSc Natural Resource and Environmental Management, UWI-Cave Hill Campus, and MSc Natural Resource Management, UWI-Mona Campus).

Box 2: Sustainable Tourism Course, MSc Natural Resource Management Programme

The Centre for Environmental Management (CEM), UWI-Mona Campus, offers a MSc Natural Resource Management, with three specialisation streams. Under the *Integrated Urban and Rural Environmental Management* stream students take the course **ENVR 6430: National Parks, Tourism and Recreational Amenities**. This course examines the tourism and leisure industry with particular emphasis on its impacts, the sustainable management of tourism and recreation amenities, the mitigation of negative impacts, and the



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management of National Parks and other protected areas with particular respect to recreational use. It also examines environmental education and communication and the interrelationship with and application to tourism and the management of national parks and recreational amenities.



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Table 2: Analysis of Sustainable Tourism and Resource Management Programmes in CARICOM Countries at the Bachelors and Masters Levels

Institution	Country	Programme	Academic Level	Sustainable Tourism Component	Absolutely Dedicated to Sustainable Tourism	Resource Management Component	Absolutely Dedicated to Resource Management
University of the West Indies (UWI)	Cave Hill Campus	Barbados	BSc Environmental Science	✗	✗	✓	✗
		BSc Hospitality and Tourism Management	Bachelors	✓	✗	✗	✗
		MSc in Natural Resource and Environmental Management (CERMES)	Masters	✓	✗	✓	✓
		MSc Tourism and Hospitality Management	Masters	✓	✗	✗	✗
		MSc Tourism and Events Management	Masters	✓	✗	✗	✗
		MSc Tourism Marketing	Masters	✓	✗	✗	✗
		MSc Tourism with Project Management	Masters	✓	✗	✗	✗



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Institution	Country	Programme	Academic Level	Sustainable Tourism Component	Absolutely Dedicated to Sustainable Tourism	Resource Management Component	Absolutely Dedicated to Resource Management
Mona Campus	Jamaica	MSc Tourism and Sport Management	Masters	✓	✗	✗	✗
		BSc in Environmental Biology	Bachelors	✗	✗	✓	✗
		BSc Tourism Management	Bachelors	✓	✗	✗	✗
		MSc in Natural Resource Management	Masters	✓	✗	✓	✓
		MSc Tourism & Hospitality Management	Masters	✓	✗	✗	✗
St. Augustine Campus	Trinidad & Tobago	BSc Environmental Science and Sustainable Technology (Special)	Bachelors	✗	✗	✓	✓
		BSc International Tourism Management Special	Bachelors	✗	✗	✗	✗
		MSc Tourism Development and Management	Masters	✓	✗	✗	✗



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Institution	Country	Programme	Academic Level	Sustainable Tourism Component	Absolutely Dedicated to Sustainable Tourism	Resource Management Component	Absolutely Dedicated to Resource Management
Other Educational Institutions	Open Campus Various and Online	MSc / PG Diploma in Biodiversity Conservation & Sustainable Development in the Caribbean	Masters	✗	✗	✓	✗
		BSc Management Studies (Tourism and Hospitality Management)	Bachelors	✓	✗	✗	✗
	University of the Bahamas	BSc/BA Small Island Studies	Bachelors	?	?	✓	✗
		BSc Tourism Management (Minor)	Bachelors	?	?	✗	✗
		BSc Ecotourism (Minor)	Bachelors	✓	✗	✗	✗
	University of Belize	BSc Natural Resources Management	Bachelors	✗	✗	✓	✗
		BSc Tourism Management	Bachelors	?	?	?	?



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Institution	Country	Programme	Academic Level	Sustainable Tourism Component	Absolutely Dedicated to Sustainable Tourism	Resource Management Component	Absolutely Dedicated to Resource Management
University College of the	Cayman Islands	BSc Social Science (Concentration I Tourism Management)	Bachelors	?	?	?	?
University of Guyana	Guyana	BSc Environmental Studies	Bachelors	✗	✗	✓	✓
		BSc Environmental Science	Bachelors	✗	✗	✓	✗
		MSc Environmental Management	Masters	✗	✗	✓	✓
Universite of Quisqueya	Haiti	Environmental Management and Protection (Program)	Bachelors/ Masters	?	?	?	?
University of the Commonwealth Caribbean	Jamaica	BSc Tourism & Hospitality Management	Bachelors	✓	✗	✗	✗
University of Trinidad and Tobago	Trinidad & Tobago	BSc Coastal and Ocean Management	Bachelors	?	?	✓	✗
		MSc Integrated Coastal and Ocean Management	Masters	?	?	✓	✗



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Key



Yes



No



Unsure – limited course description and content available



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1.3. Social Dimension of Sustainable Tourism & Resource Management

Sustainable tourism is seen as a mechanism through which destinations can protect their natural environment, as well as boost livelihoods, enhance quality of life of host communities, preserve the culture and history of a place, and improve domestic earnings and infrastructure. However, if the social dimension is not adequately addressed, tourism could lead to an erosion of local traditions and cultural expressions, an increase in illegal activities, displacement of residents for tourism development, exclusion of locals from natural resources, conflicts among resource users, seasonal unemployment, economic leakages, and in some cases increased cost of living.

Given the interconnectedness between natural and social systems, all 30 programmes in the study, at varying degrees, would need to touch on the relationship and interactions between humans and their environment. It was difficult, however, to determine the extent to which aspects such as culture, poverty reduction, and vulnerable populations were featured in the different curriculums given the limited course descriptions that were accessible. With that said, two (2) programmes, one in tourism and the other in resource management, can be highlighted for integrating social considerations in their courses:

Box 3: BSc Management Studies (Tourism and Hospitality Management)

This programme, offered by the UWI Open Campus, includes the following courses:

- TOUR 3001: Sustainable Tourism
- TOUR 3010: Sports Tourism
- TOUR 3011: Culture & Heritage Tourism
- TOUR 3012: Community-based Tourism
- HOSP 3222: Hospitality Consumer Behaviour



Box 4: MSc in Natural Resource and Environmental Management Programme

The Centre for Resource Management and Environmental Studies (CERMES) offers a Masters programme in three specialisation streams. With an overall objective of contributing to sustainable development in the Caribbean region by training professionals in environmental and natural resource management, the programme's courses integrate various socio-economic factors.

For instance, the course **ENVT 6000: Concepts and Issues for Environmental Managers** examines topics including environmental statistics, social-ecological system concepts, ecosystem-based management, global and regional governance through multilateral agreements, sustainable development, poverty and globalization. Special attention is also given to biodiversity, fisheries and coastal management, environmental impact assessment, climate change, sustainable tourism, law and various environmental management and planning tools.

Similarly, under the Tropical Coastal and Marine Resource Management specialised stream, the course **ENVT 6123: Sustainable Tourism in the Coastal Zone** provides students with information and exposes them to resources and experiences through which they will develop analytical and practical skills for the efficient management of natural and cultural resources as part of the tourism product. It looks at the emergence of sustainable tourism and its use as a strategy for both development and conservation and critically assesses the elements of the tourism industry thereby evaluating possible directions for the future of sustainable tourism in the Caribbean. Topics covered include: the historical development of tourism in the Caribbean; the social, economic and environmental impacts of tourism; the structure and sectors of the industry; standards in the tourism industry; community-based tourism; heritage tourism; sports tourism; and sustainable tourism.

1.4. Conclusion

The importance of the tourism industry, environmental quality and resource management to the Caribbean is reflected in the provision of at least 30 higher education paths in these areas. However, while there are programmes dedicated to environmental studies and resource management (about 36%), none of the tourism training paths are devoted strictly to sustainable tourism. As Hatipoglu, Ertuna, and Sasidharan (2014) point out, despite the assertions of the value of developing sustainability literate tourism professionals, research has revealed the lack of a coherent learning system and resources for sustainability education in tourism; and,

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moreover, the ad hoc way in which sustainable tourism is taught does not fit the demands of education for sustainability. In the Caribbean, this “ad hoc” approach is demonstrated in some of the tourism programmes relegating their sustainable tourism course to an elective. The absence of at least one dedicated sustainable tourism programme is a keen weakness in the region’s higher education system.

Sustainability education in tourism can be defined as “any level of education or training related to environmental, socio-cultural, and economic issues in the conduct of tourism enterprise and tourism development” (Canziani et al., 2012, as cited in Hatipoglu, Ertuna, & Sasidharan, 2014, p. 5031). Strategies to integrate sustainability into higher tourism education include:

- Undertaking full sustainability assessments of universities with tourism programmes;
- Incorporating sustainability into the curriculum, rather than in one specific course or a highly specialised major such as ecotourism;
- Utilising an interdisciplinary, problem-based and participatory learning framework that addresses the multidisciplinary and multidimensional nature of sustainability; and
- Fostering institution’s and educator’s commitment towards sustainability (not simply introducing the concept of sustainable tourism) (Boley, 2011; Browne & Shen, 2017; Deale & Barber, 2010; Hatipoglu, Ertuna, & Sasidharan, 2014; Lund-Durlacher, 2015).

2. National programs in Colombia

To address the subject of graduate programs in tourism, sustainability and related at the national level, a consultation was made to the national information system of higher education SNIES (Sistema Nacional de Información de la Educación Superior) of the Colombia’s Ministry of Education which provides a detailed database

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on academic programs available in the country, to evaluate the offer of postgraduate programs of the same or similar denomination, finding two universities that offer master's degrees related to tourism dynamics and sustainability.

Table 3. Names of the related programs in Colombia

CITY	INSTITUTION	NAME OF THE PROGRAM	PUBLIC/PRIVATE	TUITION FEES
Villavicencio	University of los Llanos	Master's Degree in Sustainable Environmental Management	Public	Not available
Medellín	Universidad de Antioquia	Master's Degree in Environmental Management	Public	\$23.187.248
Cali	Universidad del Valle	Master's Degree in Sustainable development	Public	\$26.499.712
Ibagué	Universidad del Tolima	Master's Degree in Environmental Management and Environmental Impact Assessment	Public	\$19.874.784
Santa Marta	Universidad del Magdalena	Master's Degree in Sustainable Territorial Development	Public	\$29.812.176
Bogotá D.C.	Pontificia Universidad Javeriana	Master's Degree in Environmental Management	Private	\$41.580.000
Bogotá D.C.	Pontificia Universidad Javeriana	Master in Management of Social Responsibility and Business Sustainability	Private	\$51.392.000

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Bogotá D.C.	Universidad Externado de Colombia	Master's Degree in Tourism Planning and Management	Private	\$26.163.000
Bogotá D.C.	Universidad Externado de Colombia	Master's Degree in Social Responsibility and Sustainability	Private	\$33.544.000
Bogotá D.C.	Universidad Externado de Colombia	Master's Degree in Management and Hotel Development	Private	\$32.409.000
Medellín	Universidad Pontificia Bolivariana	Master in Sustainability	Private *virtual	\$28.646.400
Manizales	Universidad de Manizales	Master's Degree in Sustainable Development and Environment	Public	\$22.344.000
Cartagena	Universidad Tecnológica de Bolívar	Master's Degree in Business Management and Tourism Organizations	Private	\$26.690.000
Barranquilla	Corporación Universidad de la Costa CUC	Master's Degree in Sustainable development	Private	Not available
Bogotá D.C	Universidad EAN	Master's Degree in Sustainable Development Projects	Private *virtual	\$31.512.00
Medellín	Instituto Tecnológico Metropolitano	Master's Degree in Sustainable Development Projects	Public	\$19.874.784
Riohacha	Universidad de la Guajira	Master's Degree in Sustainable Tourism	Public	\$19.874.784

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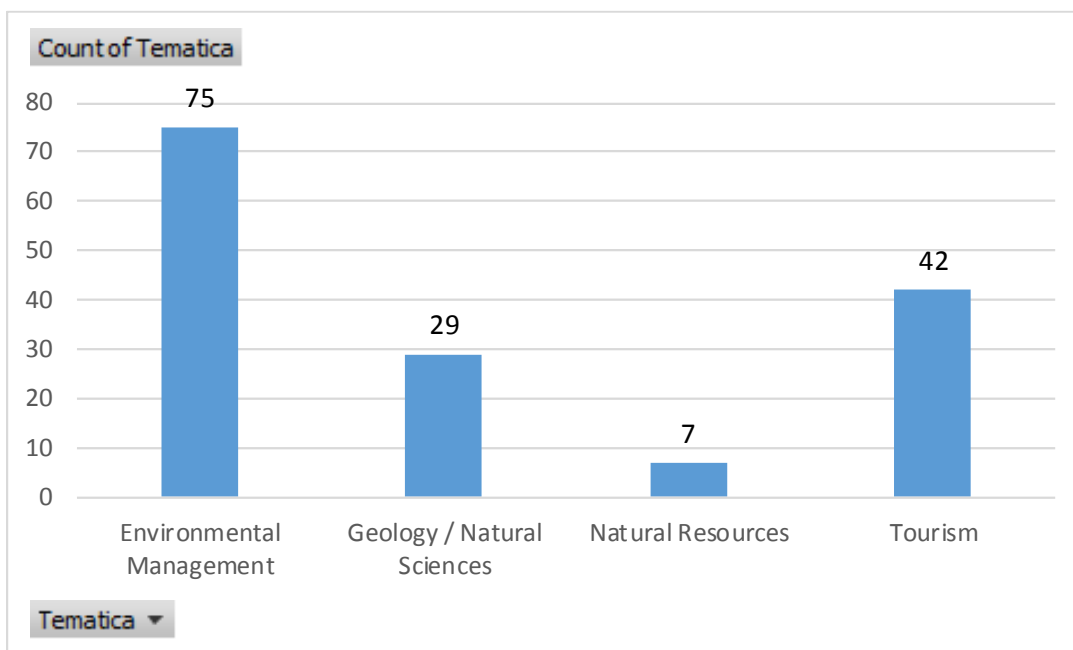
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Management and
Development

2.1. Training paths in Colombia: Tourism and Environmental Resources

A total of 153 programs were found on tourism and resource management. These included 42 programs on tourism and 111 programs on Resource Management, including programs on Environmental Management (75), Geology/Natural Sciences (29) and Natural Resources (7).



Of the 153 programs found, 25 are master's programs. The majority of these programs are offered as University Specializations (45), which are typically 1-2 year programs conducted following undergraduate studies. There are also many programs offered at the technical level (college in English; an alternative to university studies). Some of these technical programs are offered at *Servicio Nacional de Aprendizaje (SENA)* which is a national college found in all major cities in Colombia, making the availability of these programs particularly prevalent. Overall, 96 programs

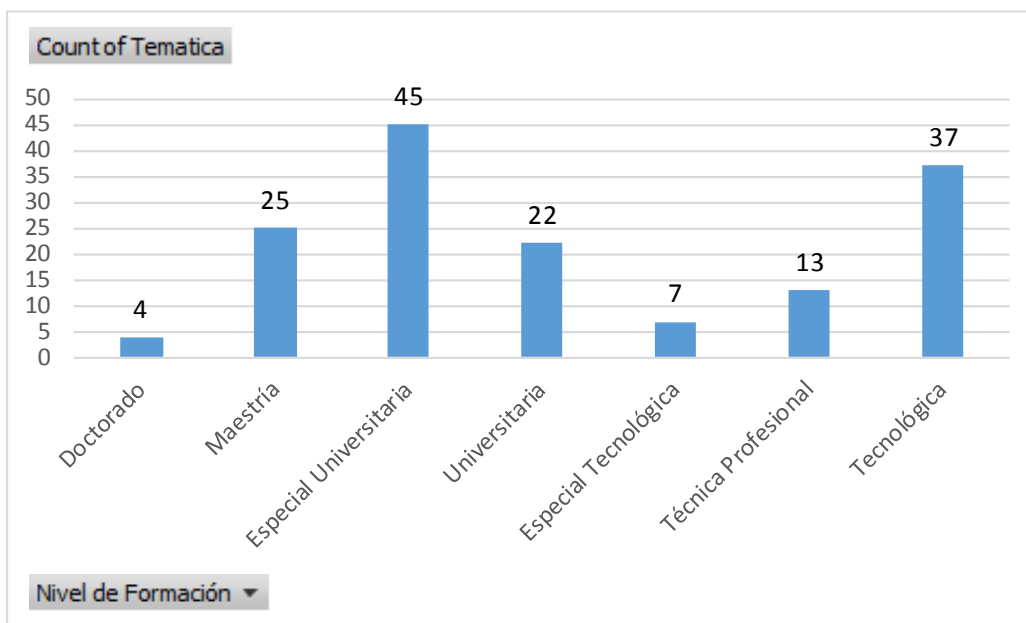
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are offered at the university level and 57 programs are offered at the technical education level.



2.1.1. Training paths in Colombia – Tourism

Programs on tourism are offered 36 different academic institutions, listed in the table below.

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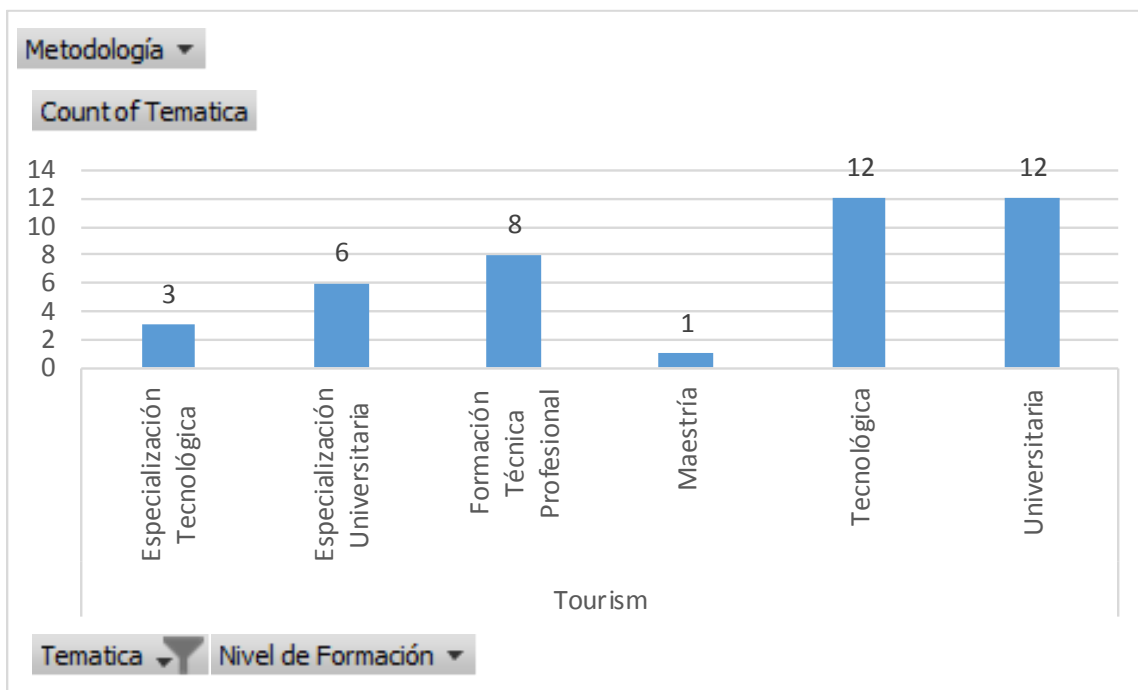


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Temática	Nombre Institución	Nombre del Programa	Nivel de Formación	Metodología
Tourism	COLEGIO MAYOR DE BOLIVAR	TECNOLOGIA EN TURISMO E IDIOMAS	Tecnológica	Presencial
	CORPORACION DE ESTUDIOS TECNOLOGICOS DEL NORTE DEL VALLE	TECNOLOGIA EN TURISMO Y HOTELERIA	Tecnológica	Presencial
	CORPORACION INTERNACIONAL PARA EL DESARROLLO EDUCATIVO -CIDE-	TECNOLOGIA EN ECOTURISMO	Tecnológica	Presencial
	CORPORACION REGIONAL DE EDUCACION SUPERIOR-CRES-DE CALI	TECNICA PROFESIONAL EN HOTELERIA Y TURISMO	Formación Técnica Profesional	Presencial
		TECNICO PROFESIONAL EN HOTELERIA Y TURISMO	Formación Técnica Profesional	Presencial
		TECNICO PROFESIONAL EN HOTELERIA Y TURISMO	Formación Técnica Profesional	Presencial
	CORPORACION UNIVERSIDAD DE INVESTIGACION Y DESARROLLO - UDI	TECNOLOGIA EN HOTELERIA Y TURISMO	Tecnológica	A distancia
	CORPORACION UNIVERSITARIA AUTONOMA DEL CAUCA	HOTELERIA Y TURISMO	Universitaria	Presencial
	CORPORACION UNIVERSITARIA DEL META - UNIMETA	TECNOLOGIA EN TURISMO	Tecnológica	Presencial
	CORPORACION UNIVERSITARIA MINUTO DE DIOS -UNIMINUTO-	TECNOLOGIA EN GESTION DEL ECOTURISMO	Tecnológica	Presencial
	CORPORACION UNIVERSITARIA REMINGTON	TECNICA PROFESIONAL EN TURISMO	Formación Técnica Profesional	A distancia
		TECNOLOGIA EN HOTELERIA, TURISMO Y RELACIONES PUBLICAS	Tecnológica	Presencial
	CORPORACION UNIVERSITARIA UNITEC	ESPECIALIZACION MARKETING ESTRATEGICO PARA HOTELERIA Y TURISMO	Especialización Universitaria	Presencial
	FUNDACION CENTRO DE EDUCACION SUPERIOR,INVESTIGACION Y PROFESIONALIZACION -CEDINPRO-	TECNICA PROFESIONAL EN HOTELERIA Y TURISMO	Formación Técnica Profesional	A distancia
	FUNDACION UNIVERSITARIA AUTONOMA DE LAS AMERICAS	HOTELERIA Y TURISMO	Universitaria	Presencial
	FUNDACION UNIVERSITARIA PARA EL DESARROLLO HUMANO - UNINPAHU	PROFESIONAL EN TURISMO Y GASTRONOMIA	Universitaria	Presencial
	FUNDACION UNIVERSITARIA SAN MATEO - SAN MATEO EDUCACION SUPERIOR	ESPECIALIZACION TECNOLÓGICA EN TURISMO RURAL	Especialización Tecnológica	Virtual
	INSTITUCION UNIVERSITARIA EAM	ADMINISTRACION DE HOTELERIA Y TURISMO	Universitaria	Presencial
	INSTITUTO DE EDUCACION EMPRESARIAL-IDEE-	TECNOLOGIA EN DIRECCION LOGISTICA DEL TURISMO DE SALUD	Tecnológica	Virtual
	INSTITUTO NACIONAL DE FORMACION TECNICA PROFESIONAL DE SAN ANDRES	TECNICA PROFESIONAL EN TURISMO SOSTENIBLE	Formación Técnica Profesional	Presencial
	POLITECNICO GRANCOLOMBIANO	ESPECIALIZACION TECNOLÓGICA EN TURISMO DE SALUD Y BIENESTAR	Especialización Tecnológica	Virtual
	POLITECNICO INTERNACIONAL INSTITUCION DE EDUCACION SUPERIOR	TECNICA PROFESIONAL EN TURISMO	Formación Técnica Profesional	Presencial
	SERVICIO NACIONAL DE APRENDIZAJE-SENA-	ESPECIALIZACION TECNOLÓGICA EN GESTION DEL ECOTURISMO	Especialización Tecnológica	Presencial
	TECNOLOGICA FITEC	TECNOLOGIA EN GESTION DE EVENTOS PARA EL DESARROLLO DEL TURISMO	Tecnológica	Virtual
	UNIDADES TECNOLOGICAS DE SANTANDER	TECNOLOGIA EN TURISMO SOSTENIBLE	Tecnológica	Presencial
	UNIVERSIDAD ANTONIO NARIÑO	HOTELERIA Y TURISMO	Universitaria	Presencial
		HOTELERIA Y TURISMO ECOLOGICO	Universitaria	Presencial
	UNIVERSIDAD AUTONOMA DE BUCARAMANGA-UNAB-	ESPECIALIZACION EN TURISMO CULTURAL	Especialización Universitaria	Virtual
	UNIVERSIDAD DE ANTIOQUIA	GESTION EN ECOLOGIA Y TURISMO	Universitaria	Presencial
		TECNOLOGIA EN ECOLOGIA Y TURISMO	Tecnológica	Presencial
		TECNOLOGIA EN ECOLOGIA Y TURISMO	Tecnológica	Presencial
	UNIVERSIDAD DEL CAUCA	TURISMO	Universitaria	Presencial
	UNIVERSIDAD DEL TOLIMA	TECNICA PROFESIONAL EN AGROTURISMO	Formación Técnica Profesional	Virtual
		TECNICO PROFESIONAL EN TURISMO DE AVENTURA	Formación Técnica Profesional	Virtual
	UNIVERSIDAD EAN	ESPECIALIZACION EN GERENCIA DE EMPRESAS DE TURISMO Y OCIO	Especialización Universitaria	Virtual
	UNIVERSIDAD EXTERNADO DE COLOMBIA	MAESTRIA EN PLANIFICACION Y GESTION DEL TURISMO	Maestría	Presencial
	UNIVERSIDAD INDUSTRIAL DE SANTANDER	TURISMO	Universitaria	Presencial
	UNIVERSIDAD LIBRE	ESPECIALIZACION EN ALTA GERENCIA EN TURISMO DE SALUD	Especialización Universitaria	Virtual
	UNIVERSIDAD NACIONAL DE COLOMBIA	ESPECIALIZACION EN TURISMO, AMBIENTE Y TERRITORIO	Especialización Universitaria	Presencial
	UNIVERSIDAD PEDAGOGICA Y TECNOLÓGICA DE COLOMBIA - UPTC	ESPECIALIZACION EN PLANIFICACION DEL TURISMO SOSTENIBLE	Especialización Universitaria	Presencial
	UNIVERSIDAD TECNOLÓGICA DE PEREIRA - UTP	ADMINISTRACION DEL TURISMO SOSTENIBLE	Universitaria	Presencial
		TECNICA PROFESIONAL EN PROCESOS DEL TURISMO SOSTENIBLE	Formación Técnica Profesional	Presencial
		TECNOLOGIA EN GESTION DEL TURISMO SOSTENIBLE	Tecnológica	Presencial
	UNIVERSIDAD-COLEGIO MAYOR DE CUNDINAMARCA	TURISMO	Universitaria	Presencial
	UNIVERSITARIA AGUSTINIANA- UNIAGUSTINIANA	HOTELERIA Y TURISMO	Universitaria	Presencial

Of the 42 academic programs on tourism, 19 of them are at the university level. The other 23 programs are all classified as technical training, including 3 programs as technical specialization programs.



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Among the university level programs in tourism, there is only 1 masters level program: Masters in Planning and Tourism Management at the Universidad Externado de Colombia in Bogotá.

2.1.2. Training paths in Colombia – Environmental Resources

Training paths on Environmental Resources are much more available than tourism. There are at least 111 training paths in Colombia on themes related to Environmental Resources, such as Environmental Management (75), Geology and Natural Sciences (29) and Natural Resources (7). Among these, there are only 4 doctoral level programs, the most applicable to the STOREM project of which are the PhD Watershed Management and Planning at the University of Tolima, the PhD in Geosciences at the Universidad Nacional, and the PhD in Earth Sciences at EAFIT (though the latter is not yet registered at the Ministry of Education as it only began 4 years ago).

Nivel de Formación	Temática	Total
Doctorado	Environmental Management	1
	Geology / Natural Sciences	3
Maestría	Environmental Management	11
	Geology / Natural Sciences	13
Especialización Universitaria	Environmental Management	33
	Geology / Natural Sciences	2
	Natural Resources	4
Universitaria	Environmental Management	1
	Geology / Natural Sciences	8
	Natural Resources	1
Especialización Tecnológica	Environmental Management	3
	Geology / Natural Sciences	1
Formación Técnica Profesional	Environmental Management	5
Tecnológica	Environmental Management	21
	Geology / Natural Sciences	2
	Natural Resources	2

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There are 24 master's programs in themes related to Environmental Resources at 15 different institutions. While it could be assumed that all of these programs include aspects of environmental sustainability, only 2 of the programs explicitly include the word "sustainable" in their titles: *Maestría en Gestión Ambiental Sostenible* at the *Universidad de Los Llanos*, as well as the *Maestría en Desarrollo Sustentable y Gestión Ambiental* at the *Universidad Distrital-Francisco Jose De Caldas*. Among all of these master's programs, only the 1 program on Environmental Management at the *Universidad de Antioquia* is offered virtually; the rest are all in-person.

Temática	Nombre Institución	Nombre del Programa
Environmental Management	COLEGIO MAYOR DE NUESTRA SEÑORA DEL ROSARIO	MAESTRÍA EN DERECHO Y GESTIÓN AMBIENTAL
	FUNDACION UNIVERSIDAD DE AMERICA	MAESTRÍA EN GESTIÓN AMBIENTAL PARA LA COMPETITIVIDAD
	FUNDACION UNIVERSIDAD DE BOGOTÁ - JORGE TADEO LOZANO	MAESTRÍA EN GESTIÓN AMBIENTAL DE SISTEMAS MARINO COSTEROS
	PONTIFICIA UNIVERSIDAD JAVERIANA	MAESTRÍA EN GESTIÓN AMBIENTAL
	UNIVERSIDAD DE ANTIOQUIA	MAESTRÍA EN GESTIÓN AMBIENTAL
	UNIVERSIDAD DE LOS LLANOS	MAESTRÍA EN GESTIÓN AMBIENTAL SOSTENIBLE
	UNIVERSIDAD DEL TOLIMA	MAESTRÍA EN GESTIÓN AMBIENTAL Y EVALUACIÓN DEL IMPACTO AMBIENTAL
	UNIVERSIDAD DISTRITAL-FRANCISCO JOSE DE CALDAS	MAESTRÍA EN PLANIFICACION Y MANEJO AMBIENTAL DE CUENCAS HIDROGRAFICAS
	UNIVERSIDAD SURCOLOMBIANA	MAESTRÍA EN DESARROLLO SUSTENTABLE Y GESTIÓN AMBIENTAL
	FUNDACION UNIVERSIDAD DE BOGOTÁ - JORGE TADEO LOZANO	MAESTRÍA EN INGENIERIA Y GESTION AMBIENTAL
Geology / Natural Sciences	PONTIFICIA UNIVERSIDAD JAVERIANA	MAESTRÍA EN CIENCIAS AMBIENTALES
	UNIVERSIDAD DE ANTIOQUIA	MAESTRÍA EN RESTAURACIÓN ECOLÓGICA
	UNIVERSIDAD DE CALDAS	MAESTRÍA EN CIENCIAS AMBIENTALES
	UNIVERSIDAD DE CIENCIAS APLICADAS Y AMBIENTALES UDCA.	MAESTRÍA EN CIENCIAS DE LA TIERRA
	UNIVERSIDAD EAFIT-	MAESTRÍA EN CIENCIAS AMBIENTALES
	UNIVERSIDAD INDUSTRIAL DE SANTANDER	MAESTRÍA EN GERENCIA Y GESTIÓN INTEGRAL DE RESIDUOS SÓLIDOS
		MAESTRÍA EN CIENCIAS DE LA TIERRA
		MAESTRÍA EN GEOFÍSICA
		MAESTRÍA EN GEOLOGIA
	UNIVERSIDAD NACIONAL DE COLOMBIA	MAESTRÍA EN CIENCIAS - GEOMORFOLOGÍA Y SUELOS
		MAESTRÍA EN CIENCIAS - METEOROLOGÍA
		MAESTRÍA EN CIENCIAS - GEOLOGIA
	UNIVERSIDAD PEDAGOGICA Y TECNOLOGICA DE COLOMBIA - UPTC	MAESTRÍA EN CIENCIAS DE LA TIERRA

There are 39 University Specialization Programs available for the subject of environmental resources offered at 33 different institutions. These programs are typically 1-2 years. Once again, it could be assumed that all of these programs include aspects of environmental sustainability, but only 3 of the programs explicitly state the focus of sustainability in their titles, including 2 specializations in sustainable environmental management at the *Universidad de Los Llanos* and the *Institucion Universitaria Antonio Jose Camacho*, as well as a specialization in the preservation and conservation of natural resources at *Universidad Pontificia Bolivariana*.

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Temática	Nombre del Programa	Nombre Institución
Environmental Management	ESPECIALIZACIÓN EN EDUCACIÓN Y GESTIÓN AMBIENTAL	UNIVERSIDAD DISTRITAL-FRANCISCO JOSE DE CALDAS
	ESPECIALIZACIÓN EN EVALUACIÓN Y GESTIÓN AMBIENTAL	FUNDACION UNIVERSITARIA INTERNACIONAL DEL TROPICO AMERICANO
	ESPECIALIZACIÓN EN GEOGRAFÍA Y GESTIÓN AMBIENTAL DEL TERRITORIO	UNIVERSIDAD CENTRAL
	ESPECIALIZACION EN GESTION AMBIENTAL	DIRECCION NACIONAL DE ESCUELAS
		FUNDACION UNIVERSIDAD DE AMERICA
		FUNDACION UNIVERSITARIA DEL AREA ANDINA
		UNIVERSIDAD AUTONOMA DE OCCIDENTE
		UNIVERSIDAD DE ANTIOQUIA
		UNIVERSIDAD DEL MAGDALENA - UNIMAGDALENA
		UNIVERSIDAD NACIONAL DE COLOMBIA
		UNIVERSIDAD PEDAGOGICA Y TECNOLÓGICA DE COLOMBIA - UPTC
		UNIVERSIDAD PONTIFICIA BOLIVARIANA
		UNIVERSITARIA AGUSTINIANA- UNIAGUSTINIANA
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL	CORPORACION ESCUELA TECNOLÓGICA DEL ORIENTE
		FUNDACION UNIVERSITARIA CATOLICA DEL NORTE
		FUNDACION UNIVERSITARIA JUAN DE CASTELLANOS
		POLITECNICO COLOMBIANO JAIME ISAZA CADAVID
		UNIVERSIDAD DE ANTIOQUIA
		UNIVERSIDAD LIBRE
	ESPECIALIZACION EN GESTION AMBIENTAL EMPRESARIAL	UNIVERSIDAD TECNOLÓGICA DE BOLIVAR
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL EMPRESARIAL	CORPORACION UNIVERSIDAD DE LA COSTA CUC
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL EN LA INDUSTRIA MINERA Y PETROLERA	UNIVERSIDAD DE SANTANDER - UDES
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL LOCAL	UNIVERSIDAD TECNOLÓGICA DE PEREIRA - UTP
	ESPECIALIZACION EN GESTION AMBIENTAL SOSTENIBLE	UNIVERSIDAD DE LOS LLANOS
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL SOSTENIBLE	INSTITUCION UNIVERSITARIA ANTONIO JOSE CAMACHO
Geology / Natural Sciences	ESPECIALIZACION EN GESTION AMBIENTAL URBANA	CORPORACION UNIVERSIDAD PILOTO DE COLOMBIA
	ESPECIALIZACION EN GESTION AMBIENTAL Y DESARROLLO COMUNITARIO	CENTRO DE EDUCACION MILITAR - CEMIL
Natural Resources	ESPECIALIZACION EN GESTION AMBIENTAL Y EVALUACION DEL IMPACTO AMBIENTAL	UNIVERSIDAD DEL TOLIMA
	ESPECIALIZACIÓN EN GESTIÓN AMBIENTAL Y PRODUCCIÓN MÁS LIMPIA	UNIVERSIDAD DE MEDELLIN
	ESPECIALIZACION EN INGENIERIA DE GESTION AMBIENTAL	UNIVERSIDAD FRANCISCO DE PAULA SANTANDER
	ESPECIALIZACION EN SEGURIDAD INDUSTRIAL, HIGIENE Y GESTION AMBIENTAL	FUNDACION UNIVERSITARIA AGRARIA DE COLOMBIA -UNIAGRARIA-
	ESPECIALIZACION EN SISTEMAS DE GESTION AMBIENTAL	UNIVERSIDAD EXTERNADO DE COLOMBIA
	ESPECIALIZACION EN GESTION AMBIENTAL	UNIVERSIDAD AUTONOMA DE OCCIDENTE
	ESPECIALIZACIÓN EN SISTEMAS DE INFORMACIÓN GEOGRÁFICA	UNIVERSIDAD NACIONAL DE COLOMBIA
	ESPECIALIZACION EN DERECHO AMBIENTAL Y DE LOS RECURSOS NATURALES	UNIVERSIDAD DE SAN BUENAVENTURA
	ESPECIALIZACION EN GERENCIA DE RECURSOS NATURALES	UNIVERSIDAD DISTRITAL-FRANCISCO JOSE DE CALDAS
	ESPECIALIZACION EN PLANEACION AMBIENTAL Y MANEJO INTEGRAL DE LOS RECURSOS NATURALES	UNIVERSIDAD MILITAR- NUEVA GRANADA
	ESPECIALIZACIÓN EN PRESERVACIÓN Y CONSERVACIÓN DE LOS RECURSOS NATURALES	UNIVERSIDAD PONTIFICIA BOLIVARIANA

2.1.3. Training paths at EAFIT

On the subject of Environmental Resource Management, EAFIT offers programs at the undergraduate, masters and doctorate level in the Department of EAFIT Sciences. EAFIT does not yet offer a program focused on tourism.

Bachelor Program in Geology

<http://www.eafit.edu.co/programas-academicos/pregrados/geologia/acerca-del-programa/Paginas/presentacion.aspx>

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The bachelor program in Geology at EAFIT University corresponds to a logical and rational growth of resource use, which is interrelated with the projection towards the coverage of the current and future needs of the country, which is required by the very characteristics of its development. The program was created in 1983, and then a specialization in Earth Sciences and the Environment was opened in 1996. The program has established the registered qualifications (Resolution 5988, 20/05/2013) and accreditations of high quality (Resolution 5784, 24/04/2014) in Colombia. The program has a duration of 10 semesters, including a practical research semester and the presentation of a bachelor's thesis. The program's objective is to educate an integral and qualified professional for the application of the principles of the exact and natural sciences in the conception, design, construction, administration and development of projects in the area of earth sciences, directed to the improvement of the quality of life of the individual or a group of people that make up a society.

Master's Program in Earth Sciences (MCT)

<http://www.eafit.edu.co/maestria-ciencias-tierra>

The Master's Program in Earth Sciences (MCT) is the only program of its kind in the country. The program's duration can be between 1.5 and 2 years. This MSc in Earth Sciences is an academic-scientific program to acquire advanced training in the knowledge and analysis of the natural processes that model landscapes and in the application of this knowledge to the development of basic and applied research projects and to the environmental management. In this program, the research project is the structural axis and is designed so that students acquire the highest level of education and participate in projects developed by the professors of the Department of Geology, most of which have external co-financing. The program offers the opportunity to develop advanced research in different fields of Earth Sciences, including: Environmental Geology, Coastal Geomorphology, Geochronology, Sedimentology and Stratigraphy, Paleoceanography and Biostratigraphy,

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Geophysics and basin analysis, coastal Oceanography, mineral resources, fluvial processes and natural risks.

PhD Program in Earth Sciences (MCT)

Given the quality certifications of the MCT by the Ministry of Education, in November 2013 and again in September 2015 (Resolution 16207), the government authorized the start of the Doctorate in Earth Sciences (DCT) of EAFIT as well. As the program is quite new, there have only been a few students to date, but it is expected to grow soon.

2.2. Thematic courses of the masters in tourism, environmental resources and sustainability

Table 4. Courses and credits for each national program

<i>Name of the program</i>	<i>Credits</i>	<i>Thematics</i>
<i>Master's Degree in Environmental Management</i>	62	<ol style="list-style-type: none"> 1. Research methodology 2. Research seminar research I 3. Research II 4. Math elective 5. Electives of the area
<i>Master's Degree in Sustainable Development</i>	48	<ol style="list-style-type: none"> 1. Fundamentals DS I 2. Specific field work seminar I 3. Research methodology I 4. Field work I 4. Grade I work 5. Seminar I 6. Fundamentals DS II 7. Specific field work seminar II 8. Research methodology II 9. Field work II 10. Grade II work 11. Seminar II 12. Specific field work seminar III 13. Methodology of research III

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		14. Field work III 15. Work of degree III 16. Seminar II 17. Specific field work seminar IV 18. Research methodology IV 19. Work of grade IV 20. Seminar iv
<i>Master's Degree in Environmental Management and Environmental Impact Assessment</i>	53	1. Ecology of ecosystems 2. Environmental policy and legislation 3. Information systems and geospatial technology 4. Thesis project 5. Environmental impact assessment 6. Environmental management 7. Optional in environmental management I 8. Optional in environmental impact assessment I 9. Thesis project II 10. Optional in environmental management II 11. Optional in environmental impact assessment II 12. Thesis I 13. Thesis II
<i>Master's Degree in Sustainable Territorial Development</i>	51	1. Research seminar 2. Sustainable urban development 3. Spatial analysis of the territory 4. Land planning and risk management 5. Territorial governance and participatory processes 6. Competitiveness and innovation 7. Local production 8. Project management and international cooperation 9. Finance and territorial financial management 10. Biodiversity and environmental conflicts 11. Research seminar 12. Sustainable territorial development management laboratory
<i>Master's Degree in Environmental Management</i>	48	1. Environmental problems. 2. Environmental policy, legislation and institutionality.

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		<ol style="list-style-type: none"> 3. Ecosystem transformation processes complementary 1 4. Information system and data analysis. complementary two 5. Environmental management I 6. Environmental planning of the territory. 7. Economy of natural resources. 8. Research I 9. Environmental management II 10. Complementary 3 and 4. 11. Research ii
<i>Master in Management of Social Responsibility and Business Sustainability</i>	49	<ol style="list-style-type: none"> 1. Business ethics 2. Strategic management 3. Business and peace 4. Human rights and business 5. Corporate governance and transparency Internal 6. Corporate citizenship 7. Research methodology 8. Standards and RSE audit 9. Social innovation 10. Socially responsible consumption 11. Project evaluation and management 12. Social design
<i>Master's Degree in Tourism Planning and Management</i>	57	<ol style="list-style-type: none"> 1. Development theories 2. Tourism theory 3. Ethics and environmentalism 4. Culture and society 5. Research Seminar I 6. Theories and models of tourism planning 7. Regional and local development of tourism 8. Formulation and evaluation of public policies 9. Governance 10. Innovations in public management 11. Negotiation and conflict resolution 12. Research Seminar II 13. Field trip 14. Digital territories 15. Ecology and landscape 16. Valorisation of cultural and natural heritage 17. Economic valorisation of the territory

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		<ul style="list-style-type: none"> 18. Sustainability management 19. Management indicators 20. Research seminar III 21. Territorial prospective 22. Competitive strategy 23. Value chain 24. Tourist product design 25. Territorial marketing 26. Statistical models
<i>Master's Degree in Social Responsibility and Sustainability</i>	56	<ul style="list-style-type: none"> 1. Theoretical and conceptual foundation 2. Principles of SR and sustainability 3. International, national context and competitiveness 4. Leadership and management of interest groups 5. Environment and competitiveness 6. Management of sustainability 7. The triple account of sustainability: economy sociocultural and environment 8. Strategy and management of sustainable projects 9. Practice and application 10. Sustainable investment models 11. First steps 12. In-depth seminars
<i>Master's Degree in Hotel Management and Development</i>	58	<ul style="list-style-type: none"> 1. Managerial leadership 2. Tourism policy and sustainable development 3. Economy and structure of the tourist market 4. Tourist legislation 5. Tourist products 6. Ecotourism and sustainable development 7. Planning and tourist destinations 8. Marketing and market research 9. Entrepreneurship and tourism entrepreneurship 10. Tourism and culture 11. History and geography of tourism 12. Sustainable tourism competitiveness 13. Research seminar. 14. Management of distribution companies

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<i>Master's degree in Sustainability</i>	44	<ol style="list-style-type: none"> 1. Introduction to vitality 2. Ecological Economy 3. Methodological basis for the measurement of sustainability 4. Course to student's choice 5. Introduction to sustainability 6. Resilience of socio-ecological systems 7. Sustainability policy 8. Optional course II at the student's choice systems, complexity and sustainability agroecology 9. Optional course I student's choice graduation project 10. Markets, consumption and sustainability 11. Technology and innovation for sustainability 12. Research Seminar II 13. Industrial ecology 14. Research seminar i
<i>Master's Degree in Sustainable Development and the Environment</i>	51	<ol style="list-style-type: none"> 1. Research I 2. Integrated management of the environment 3. Social and human development. 4. Ecology 5. Line I and II workshops 6. Curriculum 7. Period I 8. Research II 9. Integrated water management. 10. Socioeconomic and political context. 11. Sustainable economic development. 12. Line workshops III and IV. 13. Period II 14. Research III 15. Integrated management of solid waste. 16. Elective I 17. Elective II 18. Line workshops V and VI. 19. Period III 20. Elective III. 21. Elective IV 22. Elective V 23. Line workshops VII and VIII.

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		<p>24. Permanent Seminar on Environmental Thinking.</p> <p>25. Research symposium</p>
<p>Master's Degree in Business Management and Tourism Organizations</p>	50	<ol style="list-style-type: none"> 1. Economy and structure of the tourism market 2. Sustainable development of tourism 3. Tourism policy and legislation 4. Management of companies and organizations 5. Accounting and financial management 6. Human talent management and leadership 7. Marketing and research of tourism markets 8. Direction and strategic planning of companies and tourist destinations 9. Quality management of tourism companies 10. Structure and organization of tourism institutions and companies 11. Public organizations 12. Accommodation companies 13. Gastronomy companies 14. Direction of tourist operations 15. Innovation and development of tourism products 16. Formulation and evaluation of tourism projects 17. Tics applied to the management of tourism businesses
<p>Master's Degree in Sustainable Development</p>	48	<ol style="list-style-type: none"> 1. Climate change and sustainable development 2. Cultural practices and sustainable development 3. Strategic management of sustainable projects 4. Comprehensive management of natural resources 5. Science, technology and innovation for sustainable development 6. Methods and qualitative analysis 7. Research Seminar I 8. Research Seminar II 9. Models of sustainable economic development 10. Environmental social and economic analysis of projects 11. Method and quantitative analysis 12. Research seminar III

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		13. Research seminar IV
<i>Master's Degree in Sustainable Development Projects</i>	52	<ol style="list-style-type: none"> 1. Management of sustainability 2. Formulation and preparation of projects 3. Initiative and sustainable entrepreneurship 4. Elective I 5. study units 6. Analysis of statistical data for sustainable development 7. Consultancy on development projects 8. Project evaluation 9. Research seminar 10. study units 11. PMI project management 12. Business ethics and sustainability 13. Strategic thinking and global management 14. Elective study units 15. Elective II 16. Degree work 17. study units 18. Planning for sustainable development 19. Policies and global legal framework for development 20. Development of management skills and management models 21. Elective study units 22. Elective iii
<i>Master's Degree in Sustainable Development</i>	60	<ol style="list-style-type: none"> 1. Environmental management and law 2. Sustainable territory management 3. Global change and sustainable development 4. Economy, society and environment 5. Research seminar 6. Electives 7. Degree work
<i>Master's Degree in Sustainable Tourism Management and Development</i>	46	<ol style="list-style-type: none"> 1. Managerial leadership 2. Policy and sustainable development of tourism 1. Economy and structuration of tourist market 2. Tourist legislation 3. Tourist products 4. Ecotourism and sustainable development 5. Planning of tourist destinations 6. Marketing and market research

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		<ul style="list-style-type: none">7. Tourism and culture8. History and geography of tourism9. Sustainable tourism competitiveness10. Research seminar.11. Management of distribution companies
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2.3. Description of their components in sustainability

INSTITUTION	NAME OF THE PROGRAM	DESCRIPTION AND GOALS
Universidad de los Llanos	Master's Degree in Sustainable Environmental Management	<p>To promote the formation of an environmental thought that allows to relate the natural, economic, social, political-institutional and cultural dimensions of sustainable environmental management approaches and alternatives in the local, regional and national contexts.</p> <p>To promote the purpose that environmental science is a fundamental theoretical, conceptual and methodological and an investigative basis of environmental management processes that allows the analysis and understanding of the relationship between society and nature and the dynamics of territorial development</p> <p>Strengthening the academic community through scenarios of complex training in the environment, mediated by curricular flexibility, interdisciplinarity, academic mobility and inter-institutional cooperation.</p> <p>To promote leadership skills and participation in territorial planning processes in order to influence decision making of the public and private organizations. Integrate traditional and cultural knowledge as a fundamental social base element in environmental management processes.</p>
Universidad de Antioquia	Master's Degree in Environmental Management	<p>To train people with the ability to apply new technologies and methodologies in the fields of Territorial Environmental Management, Environmental Management in different areas, the modeling of environmental phenomena, the management of natural resources with special attention to water resources, the identification and evaluation of the pollution and environmental deterioration, pollution control and the reconciliation between development, environmental protection and the</p>



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		improvement of environmental performance, because this is what SGAs seek, cleaner production, eco-efficiency, eco-design , among other.
Universidad del Valle	Master's Degree in Sustainable Development	integral education of people through the direct relationship of contexts, research and interdisciplinary work, in five fields of knowledge, in which the most important socio-environmental problems of the country and Latin America are expressed.
Universidad del Tolima	Master's Degree in Environmental Management and Environmental Impact Assessment	The program aims to contribute to the knowledge and the interdisciplinary, comprehensive and systemic research on the theoretical-methodological approach to environmental management and evaluation of the environmental impact of the relationship between society and nature, territorial development and environmental sustainability.
Universidad del Magdalena	Master's Degree in Sustainable Territorial Development	To offer an academic space to professionals of the Caribbean Region, training them in techniques, tools and instruments that will facilitate their understanding of the problems of development in integral territories, based on the analysis, design and management of public policies, plans, programs and projects that contribute to boost sustainable territorial development at a regional, supra-departmental and local scale, both in the urban and rural dimension. To try to respond to the socio-environmental, territorial and biodiversity challenges that the region has today.
Pontificia Universidad Javeriana	Master's Degree in Environmental Management	The Master in Environmental Management uses knowledge that allows us to understand the environmental dimension and provides mechanisms for conceptualization, interpretation and reflection for the construction of tools to address specific situations. The purpose established in the lines of action seeks to achieve and facilitate an integrated analysis of the territory, the ecology of the landscape, environmental technologies, economic instruments, planning and environmental management of the territory. With an emphasis on the social component, contents from the following disciplines are also developed, Culture and



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		Ecosystem, Economy and Environment, Project Management, Environmental Education, Citizen Participation, Environmental Policy and Legislation, and Sustainable Development.
Pontificia Universidad Javeriana	Master in Management of Social Responsibility and Business Sustainability	The Master in Management of Social Responsibility and Business Sustainability seeks to develop knowledge and skills for the diagnosis, planning and management of social responsibility and business sustainability. Hence, it is focused on the problems related to the social, economic and environmental aspects of business activities from a sustainable perspective. The aim of the Master's program is to train competent professionals for research, integration and implementation of social responsibility and business sustainability in diverse business and organizational sectors and sectors. Their interdisciplinary and transdisciplinary work serves the objective of including social responsibility and business sustainability as a way to find a balance between business impacts and the search for the common good.
Universidad Externado de Colombia	Master's Degree in Tourism Planning and Management	The Master seeks to deepen the knowledge of planning and management of tourism under conditions of responsibility, sustainability and competitiveness, in order to promote the development of local and regional skills that allow the solution of problems through the appropriation of knowledge and methodologies in the issues related to tourism development, public policies, tourism valorization and its management.
Universidad Externado de Colombia	Master's Degree in Social Responsibility and Sustainability	The object of study of this program is Sustainability, understood as the development model to which contemporary society aims, which links the design and management of socially responsible practices in the economic, social and environmental aspects of public, private and public organizations. civil society in its interaction with interest groups.



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Universidad Externado de Colombia	Master's Degree in Hotel Management and Development	The Master's Degree in Hotel Management and Development seeks to develop skills that allow the hotel phenomenon to be viewed from multiple perspectives and different disciplines. Research is not left aside, on the contrary, it is perceived as a fundamental pillar in the search for the generation and dissemination of specific knowledge in the field of study.
Universidad Pontificia Bolivariana	Master's degree in Sustainability	To involve the themes associated with the study of different socio-ecological systems to understand how their work interacts with society and the environment, and to identify possible challenges, risks and impacts. Innovation and adaptation of technology to the demands for sustainable development; the efficient management of natural resources, pollution and waste management are thematic points to decision making in accordance with the requirements of companies, industry, governmental and non-governmental organizations and public administration.
Universidad de Manizales	Master's Degree in Sustainable Development and Environment	This Master's program promotes the generation of knowledge about Sustainable Development through research and the recognition of experiences and advances in environmental matters; In addition, it seeks to positively impact the contexts in which participants develop from their academic and research processes, which strengthen working, professional and social fields.
Universidad Tecnológica de Bolívar	Master's Degree in Business Management and Tourism Organizations	The master's degree has been structured, following the GTAT (General Tourism Achievement Test) methodology, developed by the World Tourism Organization. Its theoretical-practical and international approach allows participating in the planning and management of tourism development of municipalities, areas or regions, given that the courses taught include both the problems of the hotel industry and the rest of tourist companies and tourist destinations.



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Corporación Universidad de la Costa CUC	Master's Degree in Sustainable Development	To train professionals at the master's level capable of formulating, managing and evaluating projects in research, development, innovation and social appropriation of knowledge applied to the contemporary problems of Sustainable Development contemplated in the SDGs (UN, 2015), to provide integral and inclusive solutions to starting from the synergistic relationship between university - state - company - society, together with the promotion of sustainable and environmental management of resources and technological development in the face of the challenges of climate change, with an impact on the sustainable development of organizations, communities and the quality of life of people.
Universidad EAN	Master's Degree in Sustainable Development Projects	To strengthen comprehensive and strategic competencies in project management; where the social, economic and environmental impact is evaluated, in order to generate sustainable development and communities.
Instituto Tecnológico Metropolitano	Master's Degree in Sustainable Development	The Master's Degree in Sustainable Development of the ITM will be offered to professionals interested in contributing to the search for integral solutions to the problems linked to development by promoting the use of socially, environmentally and economically sustainable practices. The program is a response to the great challenges facing our society and especially to the search for practical solutions aimed at both mitigating and facilitating adaptation to the problems arising from our current development model. The novelty of this master's program in sustainable development is the search for solutions from a transdisciplinary perspective, developing skills from the different disciplines. In this way, students from a wide spectrum of disciplines, including those of the economic, social, environmental and engineering sciences, will be able to join the program.



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Universidad de la Guajira	Master's Degree in Sustainable Tourism Management and Development	The Master in management and sustainable tourism development of the University of La Guajira, will train students to the ability to solve problems of their multicultural and ethnic environment in terms of the use of tourism resources in a sustainable manner, capable of recognizing and integrating socioeconomic, political factors , cultural and environmental in the study of tourism management and capable of designing and implementing solutions that contribute to the sustainability and sustainability of its development.
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2.4. Undergraduate programs in resource management and sustainability in Colombia

2.4.1. *Tourism in undergraduate programs in Colombia*

Table 5: Undergraduate programs that include a course on sustainable tourism

Municipality	Institution	Name of the program	Subjects
Buenaventura	Universidad del pacifico	Tecnologia (associate degree) in Hotel and Tourism management	Environment and sustainability
Guadalajara buga	Universidad del valle	Tecnologia (associate degree) in tourist and hotel companies	- Sustainable Accomodation - Ecotourism
Cartagena	Universidad de cartagena	Técnico profesional (technician professional degree) in tourist operation	Sustainable management in accommodation
Cartagena	Universidad de cartagena	Tecnología (associate degree) in Tourism management	Management of sustainability in tourism
Cartagena	Universidad de cartagena	Administration of touristic and hotel companies	Sustainable Tourism



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Santa marta	Universidad del magdalena - unimagdalena	Administration of touristic and hotel companies	Ecology and Environment
Girardot	Universidad de cundinamarca- udec	Tecnología (associate degree) in tourism and hotel management	Sustainable Resources
Riohacha	Universidad de la guajira	Administration of tourism and hotel	Sustainable Tourism
Bogotá	Universidad externado de colombia	Administration of touristic and hotel companies	Ecotourism and sustainability
Bogotá	Universidad manuela beltran- umb-	Administration of tourism and hotel	Ecotourism and sustainability
Barranquilla	Universidad autonoma del caribe- uniautonomia	Administration of touristic and hotel companies	Sustainable development
Girardot	Corporacion universidad piloto de colombia	Administration of tourism and hotel	- Environment and sustainable development - sustainable tourism
Bogotá	Universidad antonio nariño	Administration of tourist companies by cycles - professional cycle	Development of sustainable tourism
Manizales	Universidad catolica de manizales	Tourist Administration	Tourism and tourist development

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Palmira	Universidad santiago de cali	Tecnico profesional (technician professional degree) in tourist operation processes	Sustainable Tourism
Palmira	Universidad santiago de cali	Técnico profesional (technician professional degree) in integral operation of tourist sales	Sustainable Tourism
Medellin	Colegio mayor de antioquia	Tecnología (associate degree) in tourism management	Sustainable Tourism
Bogotá	Fundacion universitaria los libertadores	Administration of Tourism and Hotel	Sustainable Tourism
Tunja	Fundacion universitaria juan de castellanos	Administration of Tourism and Hotel	Sustainable Tourism
Bogotá	Fundacion universitaria empresarial de la camara de comercio de bogota	Tourist Administration	Sustainable Tourism
Medellin	Fundacion universitaria	Administration of Tourism and Hotel	Sustainable Tourism

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	autonoma de las americas		
Sincelejo	Corporacion universitaria del caribe - cecar	Tourist Administration	Management of sustainable use
Sincelejo	Corporacion universitaria del caribe - cecar	Tourist Administration	Management of sustainable use
Neiva	Corporacion universitaria del huila-corhuila-	Administration of tourist companies	Elective 3: Sustainable Tourism
Bogotá	Corporacion universitaria unitec	Administration of tourist companies and Hotel	Sustainable Tourism
Cartagena	Colegio mayor de bolivar	Tourist Administration	Design of sustainable tourism products

About 13 of the 19 university level programs could be classified as tourism business due to their focus on management and administration. On the other hand, there are 2 programs on themes of sustainable tourism at the *Universidad Pedagógica y Tecnológica de Colombia (UPTC)* and the *Universidad Tecnológica De Pereira (UTP)*. There are also 3 programs related to ecological tourism at the *Universidad Nacional de Colombia*, the *Universidad de Antioquia*, and the *Universidad Antonio Nariño*. There is also 1 program on cultural tourism at the *Universidad Autónoma de Bucaramanga (UNAB)*. This specialization in cultural tourism, as well as 2 other specializations on administrative tourism management, are offered virtually; the rest of the programs on tourism are all offered as in-person study programs.



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Temática	Nivel de Formación	Nombre del Programa	Nombre Institución
Tourism	Especialización Universitaria	ESPECIALIZACIÓN EN ALTA GERENCIA EN TURISMO DE SALUD	UNIVERSIDAD LIBRE
		ESPECIALIZACIÓN EN GERENCIA DE EMPRESAS DE TURISMO Y OCIO	UNIVERSIDAD EAN
		ESPECIALIZACIÓN EN PLANIFICACIÓN DEL TURISMO SOSTENIBLE	UNIVERSIDAD PEDAGOGICA Y TECNOLÓGICA DE COLOMBIA - UPTC
		ESPECIALIZACIÓN EN TURISMO CULTURAL	UNIVERSIDAD AUTÓNOMA DE BUCARAMANGA-UNAB
		ESPECIALIZACIÓN EN TURISMO, AMBIENTE Y TERRITORIO	UNIVERSIDAD NACIONAL DE COLOMBIA
		ESPECIALIZACIÓN MARKETING ESTRATÉGICO PARA HOTELERÍA Y TURISMO	CORPORACIÓN UNIVERSITARIA UNITEC
		MAESTRÍA EN PLANIFICACIÓN Y GESTIÓN DEL TURISMO	UNIVERSIDAD EXTERNADO DE COLOMBIA
		ADMINISTRACIÓN DE HOTELERÍA Y TURISMO	INSTITUCIÓN UNIVERSITARIA EAM
		ADMINISTRACIÓN DEL TURISMO SOSTENIBLE	UNIVERSIDAD TECNOLÓGICA DE PEREIRA - UTP
		GESTIÓN EN ECOLOGÍA Y TURISMO	UNIVERSIDAD DE ANTIOQUIA
	Universitaria	HOTELERÍA Y TURISMO ECOLOGICO	CORPORACIÓN UNIVERSITARIA AUTÓNOMA DEL CAUCA
		PROFESIONAL EN TURISMO Y GASTRONOMÍA	FUNDACIÓN UNIVERSITARIA AUTÓNOMA DE LAS AMÉRICAS
		TURISMO	UNIVERSIDAD ANTONIO NARIÑO
			UNIVERSITARIA AGUSTINIANA- UNIAGUSTINIANA
			UNIVERSIDAD ANTONIO NARIÑO
			FUNDACIÓN UNIVERSITARIA PARA EL DESARROLLO HUMANO - UNINPAHU
			UNIVERSIDAD DEL CAUCA
			UNIVERSIDAD INDUSTRIAL DE SANTANDER
			UNIVERSIDAD-COLEGIO MAYOR DE CUNDINAMARCA

Among the 23 programs in tourism classified as technical training, there are 4 programs focused on sustainable tourism (highlighted in yellow in the table below). There are also 4 programs (green in table below) aimed at ecotourism and 1 program on “adventure tourism” which would likely be related to eco-tourism. Among these 23 programs, 14 are in-person study programs, 6 are virtual and 3 are distance-study programs.

Nivel de Formación	Nombre del Programa	Nombre Institución
Especialización Tecnológica	ESPECIALIZACIÓN TECNOLÓGICA EN GESTIÓN DEL ECOTURISMO	SERVICIO NACIONAL DE APRENDIZAJE-SENA-
	ESPECIALIZACIÓN TECNOLÓGICA EN TURISMO DE SALUD Y BIENESTAR	POLITECNICO GRANCOLOMBIANO
	ESPECIALIZACIÓN TECNOLÓGICA EN TURISMO RURAL	FUNDACION UNIVERSITARIA SAN MATEO - SAN MATEO EDUCACION SUPERIOR
	Formación Técnica Profesic	UNIVERSIDAD DEL TOLIMA
	TECNICA PROFESIONAL EN AGROTURISMO	CORPORACION REGIONAL DE EDUCACION SUPERIOR-CRES-DE CALI
	TECNICA PROFESIONAL EN HOTELERÍA Y TURISMO	FUNDACION CENTRO DE EDUCACION SUPERIOR,INVESTIGACION Y PROFESIONALIZACION -CEDINPRO-
	TÉCNICA PROFESIONAL EN PROCESOS DEL TURISMO SOSTENIBLE	UNIVERSIDAD TECNOLÓGICA DE PEREIRA - UTP
	TECNICA PROFESIONAL EN TURISMO	CORPORACION UNIVERSITARIA REMINGTON
		POLITECNICO INTERNACIONAL INSTITUCION DE EDUCACION SUPERIOR
	TÉCNICA PROFESIONAL EN TURISMO SOSTENIBLE	INSTITUTO NACIONAL DE FORMACION TECNICA PROFESIONAL DE SAN ANDRES
Tecnológica	TECNICO PROFESIONAL EN TURISMO DE AVENTURA	UNIVERSIDAD DEL TOLIMA
	TECNOLOGIA EN DIRECCIÓN LOGÍSTICA DEL TURISMO DE SALUD	INSTITUTO DE EDUCACION EMPRESARIAL-IDEE-
	TECNOLOGÍA EN ECOLOGÍA Y TURISMO	UNIVERSIDAD DE ANTIOQUIA
	TECNOLOGIA EN ECOTURISMO	CORPORACION INTERNACIONAL PARA EL DESARROLLO EDUCATIVO -CIDE-
	TECNOLOGÍA EN GESTIÓN DE EVENTOS PARA EL DESARROLLO DEL TURISMO	TECNOLOGICA FITEC
	TECNOLOGÍA EN GESTIÓN DEL ECOTURISMO	CORPORACION UNIVERSITARIA MINUTO DE DIOS -UNIMINUTO-
	TECNOLOGÍA EN GESTIÓN DEL TURISMO SOSTENIBLE	UNIVERSIDAD TECNOLÓGICA DE PEREIRA - UTP
	TECNOLOGIA EN HOTELERÍA Y TURISMO	CORPORACION UNIVERSIDAD DE INVESTIGACION Y DESARROLLO - UDI
	TECNOLOGIA EN HOTELERÍA, TURISMO Y RELACIONES PUBLICAS	CORPORACION UNIVERSITARIA REMINGTON
	TECNOLOGIA EN TURISMO E IDIOMAS	COLEGIO MAYOR DE BOLIVAR
	TECNOLOGÍA EN TURISMO SOSTENIBLE	UNIDADES TECNOLÓGICAS DE SANTANDER
	TECNOLOGIA EN TURISMO Y HOTELERÍA	CORPORACION DE ESTUDIOS TECNOLÓGICOS DEL NORTE DEL VALLE
	TECNOLOGIA EN TURISMO	CORPORACION UNIVERSITARIA DEL META - UNIMETA

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2.4.2. Resource management in Undergraduate programs in Colombia

There are far fewer programs on environmental resources at the undergraduate level (10), as the subject tends to be a specialization for more general undergraduate programs in biology or environmental engineering. However, none of these undergraduate programs would be considered as having a focus similar to the STOREM pathway, as they fall into different categories of physical sciences or administrative management. The five categories of these undergraduate programs are listed below:

- Administración Ambiental y de los Recursos Naturales
- Administración de Empresas y Gestión Ambiental
- Geociencias
- Geología
- Oceanografía Física

There are 4 technical specializations available on the subject of environmental resources (listed below). One of these programs is a distance-study program on environmental management, two programs are on coastal management at the naval school, while the last is on sustainable environmental management at the *Fundacion de Educacion Superior San Jose*.

Metodología	Nombre Institución	Nombre del Programa
A distancia	FUNDACION TECNOLOGICA ANTONIO DE AREVALO	ESPECIALIZACIÓN TECNOLÓGICA EN GESTIÓN AMBIENTAL
Presencial	ESCUELA NAVAL DE SUBOFICIALES ARC BARRANQUILLA	ESPECIALIZACIÓN TECNOLÓGICA EN EL MANEJO INTEGRADO DE LAS ZONAS COSTERAS.
		ESPECIALIZACIÓN TECNOLÓGICA EN GESTIÓN AMBIENTAL MARINA Y COSTERA
		FUNDACION DE EDUCACION SUPERIOR SAN JOSE -FESSANJOSE- ESPECIALIZACIÓN TECNOLÓGICA EN GESTIÓN AMBIENTAL SOSTENIBLE

Of the 30 programs on environmental resources at the technical training level, 26 of them have very similar titles focused on environmental management. The other 4 programs are based on training for the use of technology.

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Environmental Management	26
Geology / Natural Sciences	2
Natural Resources	2

2.5. Training paths in Colombia – E-Learning

Of the 111 programs evaluated on the subjects of tourism and environmental resources, 21 of these programs are offered virtually. Most of these programs are university specializations (11). The only master's available virtually is the master's in environmental management at the *Universidad de Antioquia*.

Metodología	Nivel de Formación	Total
Virtual	Maestría	1
	Especialización Universitaria	11
	Especialización Tecnológica	2
	Formación Técnica Profesional	3
	Tecnológica	4

2.6. Crucial points or weaknesses

A crucial point in this analysis is that 153 different programs across the large country of Colombia, it is difficult to assess the academic programs at a detailed level. The question of whether programs on tourism or environmental resources involve a focus on (or aspects of) sustainability is difficult to ascertain. The previous analysis showed that there were relatively few programs (19) that included sustainability or ecotourism in their titles (6 in the tourism university, 8 tourism technical, 2 environmental university, 3 environmental technical). While we could assume that many of the programs on environmental management include aspects of sustainability, it is difficult to know, and so in all likelihood it is safe to assume that there is only a partial focus in these programs.

A general concern for all these programs, and an issue in general at universities globally, is that they are often too theoretical and not practical enough. This may

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relate to a general problem of university education being treated as a business by institutions and being treated as an obligation by students, which unfortunately results in both the institution and students being content to exchange money for a diploma, regardless of how applicable the education material is. In this regard, it is difficult to expect a strong focus on sustainability as business-minded individuals are not the best leaders of sustainability.

2.7. Social / cultural questions

It is unlikely that social / cultural questions are strongly integrated in the available training paths. The only program that explicitly includes these words in the title is the program on cultural tourism at the *Universidad Autonoma de Bucaramanga* (UNAB). As many of these programs may be focused more on the administrative aspects of management and planning, it is unlikely that they include social or cultural focus. The exception to this may be when national policy dictates the need to consider marginalized cultures (poor/segregated/vulnerable/native populations) into the processes of management plans. However, while this exists in some aspects of national policy, it would be precise to say that these marginalized cultures are drastically under-represented in national policy and priorities, which tend to focus on economic growth to which these cultures contribute little. As a result, it is probably that these cultures are under-represented in the education training paths as well.



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3. National programs in Costa Rica

3.1. Paths in resource management in Latin-America

Both in Central America and generally in Latin America there are professionalization efforts on topics related with sustainability tourism and natural resource management, but it seems that the offer is not enough and also is not well articulated. There are plenty of free courses, diplomas, technical programs and a few undergraduate programs and postgraduate.

Latin America offers some programs oriented towards management of natural resources, management of protected areas, management of biodiversity and wildlife, however, and tourism as shown below.

Table 6. Some master's degree programs in topics with management of natural resources in the Latin American region

Country	University	Program name
Argentina	Universidad de Cs Empresariales y Sociales (UCES)	Maestría en Estudios Ambientales
	ITBA Instituto Tecnológico de Buenos Aires	Maestría en Gestión Ambiental
	Universidad Nacional del Litoral	Maestría en Gestión Ambiental
	Universidad Nacional del Litoral	Maestría en Gestión Integrada de los Recursos Hídricos
	Universidad Nacional del Comahue (UNCOMA)	Maestría en Intervención Ambiental
	Universidad Nacional del Comahue (UNCOMA)	Maestría en Gestión Ambiental del Desarrollo Urbano
	Universidad de Buenos Aires (UBA)	Maestría en Conservación de la biodiversidad

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Country	University	Program name
	UBA Universidad de Buenos Aires (UBA)	Maestría en Cs Ambientales
	Universidad Nacional de La Plata	Maestría en Evaluación Ambiental de Sistemas Hidrológicos
	Universidad Nacional de La Plata	Maestría en Manejo Integral de Cuencas Hidrográficas
	Universidad Nacional de General San Martín	Maestría en Gestión Ambiental
	Universidad Católica de Salta	Maestría en Gestión Ambiental
	Universidad Católica de Santa Fe	Maestría en Evaluación de Impacto y Gestión Ambiental
	Universidad Nacional de La Matanza	Maestría en Gestión Ambiental
	Universidad Nacional de Tucumán	Maestría Interdisciplinar en Gestión Ambiental
	Universidad Nacional de Córdoba	Maestría en Gestión Ambiental del Desarrollo Urbano,
	Universidad Nacional de Mar del Plata	Maestría en Gestión Ambiental del Desarrollo Urbano,
	Universidad Maimonides	Maestría en Manejo Ambiental
	Universidad Nacional de Rosario	Maestría en Sistemas Ambientales Humanos
	Universidad Nacional de Quilmes	Maestría en Ambiente y Desarrollo Sustentable
Chile	Universidad de Viña del Mar	Magíster en Gestión Ambiental
	Universidad de Chile	Magíster en Áreas Silvestres y Conservación de la Naturaleza
	Universidad de Chile	Magíster en Ciencias de la Ingeniería, mención Recursos y Medio Ambiente Hídrico
	Universidad de Valparaíso	Magister en Gestión Ambiental

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Country	University	Program name
	Universidad de Valparaíso	Magister en Desarrollo Regional y Medio Ambiente
	Universidad del Desarrollo (UDD)	Magister en Gestión de la Sustentabilidad
	Universidad Santo Tomás (UST)	Magister en Manejo y Gestión Ambiental
Iberoamérica	Fundación Universitaria Iberoamericana (FUNIBER)	Maestría en Gestión y Auditorías Ambientales
	Fundación Universitaria Iberoamericana (FUNIBER)	Maestría en Ingeniería y Tecnología Ambiental
	Fundación Universitaria Iberoamericana (FUNIBER)	Maestría en Cambio Climático
	Fundación Universitaria Iberoamericana (FUNIBER)	Maestría en Energías Renovables
Uruguay	Universidad de la República	Maestría en Ciencias Ambientales
	Universidad de la República	Maestría en Manejo Costero Integrado del Cono Sur
Paraguay	Universidad Nacional de Asunción	Maestría en Gestión Ambiental
	Universidad Nacional de Asunción	Maestría en Biología de la Conservación
	Universidad Nacional de Asunción	Maestría en Hidrogeología
	Universidad Nacional de Asunción	Maestría en Ingeniería de Recursos Hídricos
	Universidad Técnica de Cooperación y Desarrollo	Maestría en Cs Ambientales
	Universidad Nacional de Itapúa	Maestría en Gestión Ambiental
Bolivia	Universidad de Loyola	Maestría en Ingeniería de Medio Ambiente y Recursos Naturales
	Universidad Mayor de San Andrés	Maestría en Ecología y Conservación
	Universidad Andina Simón Bolívar	Maestría en Cambio Global, Gestión del Riesgo y Seguridad Alimentaria

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3.2. Paths in resource management and Tourism in Costa Rica

3.2.1. *Brief Synopsis of Tourism Development in Costa Rica*

In Costa Rica tourism development plans began to be important at the end of the 20th century, specifically during the eighties and the nineties, although some specific policies and laws began to be implemented during the late seventies, for example, the Papagayo Tourism Project Law, from 1979 (Asamblea Legislativa, 1979). Tourism development plans began to emphasize on both the ecotourism sector, and the sun and beach tourism, especially on the coast of the provinces of Guanacaste and Puntarenas, on the Pacific Ocean.

During the nineties, ecotourism bloomed in Costa Rica. State policies, especially by the Costa Rica Tourism Institute aimed at the development of ecotourism all over the country, especially in areas near and around national parks or biological reserves. International advertising campaigns, designed to attract both investors and tourists, bore mottos such as “Costa Rica: no artificial ingredients”, which emphasized the objective of attracting a kind of tourism centered on nature, conservation, adventure and ecology.

At the beginning of the 21st century, specifically during the first decade, the focus gradually changed towards the development of a new kind of tourism: the sun and beach tourism, on the coastal regions of the country, specifically on the provinces of Guanacaste and Puntarenas, in places such as Quepos, Tamarindo, El Coco and Papagayo, among others. This new trend centered on attracting investors, especially big transnational hotel corporations and building investors focused on the second residence sector. By the middle of the first decade, Guanacaste alone attracted almost 25% of the foreign direct investment in the country (Cañada, 2010). This change in the policies of attraction of foreign investment and tourism development established two main categories of tourism development in the country: one centered on ecotourism and adventure, and the other one on sun and beach,

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especially after the proliferation of second residences and all-inclusive hotels in Guanacaste and Puntarenas. The “no artificial ingredients” motto gave way to the more eclectic “essential Costa Rica”, and a whole array of situations related to this new kind of tourism development appeared.

Social and environmental conflicts became regular in coastal regions, especially those related to water sources, lands, and access to public spaces (Hernández and Picón, 2013; Navarro, 2013; Navarro, 2014; Navas y Cuvi, 2015); and Costa Rica began to have many of the same problems other countries in the region were already facing in regards to poorly planned tourism development. All hopes of development in coastal areas were placed on sun and beach tourism, especially on the supposed benefits of trickle-down economics derived from direct foreign investment (Cordero, 2006; Blasquez and Cañada, 2011), although reality proved otherwise, and tourism brought no significant diminishment of poverty in littoral regions such as Guanacaste (Sauma, 2011).

With the opening of National Convention Center, in San Jose, in 2018, part of the State policy on tourism began to focus on business tourism, through the provision of enough room and better conditions to host international events and conventions. Other kinds of tourism, such as health tourism, have also become important in the latter years in the country.

3.2.2. Training Paths in Costa Rica in the Area of Tourism

Along with the State policy of attracting tourist and investors since the last decades of the 20th century, tourism education began to be important, both at technical and superior levels, in Costa Rica. The University of Costa Rica, the most important higher education institution in the country, established a bachelor's program in ecotourism in 1991, and the National University established its own bachelor's in tourism in 2001 (Arrieta and Rivera, 2007). The bachelor's in ecotourism was the first college degree syllabus planned and taught in the country.



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These two universities, along with others that would follow later, established a trend in teaching tourism focusing, on the one hand, on the possibilities of exploiting the ecological biodiversity and richness of the country, and, on the other, on emphasizing what John Tribe (2010) called the management or business approach to the tourism activity, especially in the case of the National University.

Master's programs were established later, during the first and the second decades of the current century. In these programs, the trends and emphases on sustainability, biodiversity and wildlife and natural resources management were among the most recurrent, both in the University of Costa Rica, with its master's program in environmental management and ecotourism, and the National University, with a master's program in nature tourism management. Other important programs include the University for International Cooperation's master's program on management on sustainable tourism, and the Tropical Agricultural Research and Higher Education Center's program on sustainable tourism.

At technical and bachelor's levels the emphasis continues to be centered on the management and business components of tourism, especially in universities such as the National University and the National Technical University; and ecotourism, in the case of the University of Costa Rica. In the National University, the management component amounts to 42% of the courses, and those courses related to tourism theory and epistemology only amount 23% of the credits (Barboza, 2018). In the case of the University of Costa Rica, 35% of the syllabus focuses on the study of areas related to biology, biogeography, natural history, environmental education, ecology and ecotourism, whereas 28% of the courses deal with issues related to anthropology, history, archeology, economics, and business management (Barboza, 2018). It is important to notice that the curriculum in the bachelor's in ecotourism in the University of Costa Rica has had little or no changes since 1991, and that of the National University was revised for the last time in 2008.



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Complementing the previous analysis of regional programs focused on environmental management issues, the next table shown a compilation of Master Programs with topics related to biodiversity conservation, both in public and private universities in Costa Rica.

Table 7. Master's programs in topics related environmental Management, in Costa Rica

University	Name of the program
Universidad de Costa Rica-UCR http://www.sep.ucr.ac.cr/?id=	Maestría Académica en Ciencias Agrícolas y Recursos Naturales
	Maestría Académica en Biología con énfasis en Genética y Biología Molecular
	Maestría Académica en Desarrollo Sostenible
	Maestría Académica en Hidrogeología y Manejo de Recursos Hídricos
	Maestría Académica en Gestión del Riesgo en Desastres y Atención de Emergencias
	Maestría Profesional en Gestión del Riesgo en Desastres y Atención de Emergencias
	Maestría Académica en Gestión Integrada de Áreas Costeras Tropicales
	Maestría Académica en Gestión Ambiental y Ecoturismo
	Maestría Profesional en Gestión Ambiental y Ecoturismo
Universidad Nacional de Costa Rica-UNA http://www.una.ac.cr/index.php/m-posgrados/posgrados-por-area-tematica	Maestría en Ciencias Marinas y Costeras
	Maestría en Gestión y Estudios Ambientales
	Conservación y en Maestría en Manejo de Vida Silvestre
	Maestría en Desarrollo Rural



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University	Name of the program
	Maestría en Gestión de Turismo de la Naturaleza
Instituto Tecnológico de Costa Rica-ITCR (http://www.tec.ac.cr/posgrados/Paginas/default.aspx)	Maestría Académica en Ciencias Forestales
	Maestría profesional en Gestión de Recursos Naturales y Tecnologías de Producción
Universidad Estatal a Distancia-UNED (http://www.uned.ac.cr/index.php/carreras-uned)	Maestría Académica en Manejo de Recursos Naturales
Universidad Latina de Costa Rica- (http://ulatina.ac.cr/oferta-academica/facultades)	Maestría Profesional en Gerencia y Gestión Ambiental
Centro Agronómico Tropical De Investigación Y Enseñanza (CATIE). (https://www.catie.ac.cr/programas-de-educacion/posgrado/maestrias.html)	Maestría Académica Internacional en Manejo y Conservación de Bosques Tropicales y Biodiversidad
	Maestría Académica Internacional en Gestión y Manejo Integrado de Cuencas Hidrográficas
	Maestría Académica Internacional en Mitigación y Adaptación al Cambio Climático
	Maestría Profesional Internacional en Práctica de la Conservación de la Biodiversidad
	Maestría Profesional Internacional En Manejo y Gestión de Cuencas Hidrográficas Modalidad Virtual A Distancia

Table 8. Some programs in topics related tourism, in Costa Rica

University	Name of the program
Universidad Internacional de las Américas	Licenciatura en Administración de Actividades y Empresas Turísticas
FUNIBER	Maestría en Dirección y Consultoría Turística
Universidad Nacional	Maestría en Gestión de Turismo de la Naturaleza
Universidad del Turismo	Bachillerato en Gestión del Turismo Ecológico
CATIE	Maestría Internacional de Turismo Sostenible

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3.3. Sustainability and Environmental Resource Management Related Training in Tourism Education in Costa Rica

At a bachelor's level –four year training programs– tourism training programs in Costa Rica offer few courses on sustainability and environmental resource management, even if the general programs supposedly stress on these issues. The University of Costa Rica, for instance, offers, as stated above, a bachelor's in ecotourism, since 1991, in which, along the syllabus, it is possible to identify one course on environmental education, one course on ecology and two on ecotourism, out of the 45 courses that constitute the curriculum.

At the National University, in the bachelor's degree in Business Management of Sustainable Tourism program, there are no courses related to sustainability or environmental education, even though, ironically, the word “sustainable” appears in the general description of the program itself. There is only one optional course called Environment and Sustainable Development, but as its nature indicates, is not mandatory and students can choose whether to take this one or other optional courses.

The Costa Rica Technology Institute offers a bachelor's program in Sustainable Tourism Management, in which three courses –Ecology and Environmental Problems, Human Sustainable Development, and Environmental Management– are part of the syllabus, out of 24 courses.

In the case of the National Technical University, its bachelor's program on Ecotourism Management offers only two courses –Environmental Management Applied to Tourism, and Natural Space Management and Ecotourism– related to the field of sustainability, out of 24 courses.

The Tourism University has a degree on ecotourism management that offers four courses related to sustainability and environmental education, out of 31 courses.



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Table 9. Sustainability and environmental education related courses in B.A. programs in Costa Rican universities

University	B.A. Program	Total courses	Sustainability related courses
University of Costa Rica	Ecotourism	45	4
National University	Business Management of Sustainable Tourims	38	0
Costa Rica Technology Institute	Sustainable Tourim Management	24	3
National Technical University	Ecotourism Management	24	2
Tourism University	Ecotourism Management	31	4

As the scrutiny of the programs demonstrates, the number of courses on sustainability and environmental education in relation to the rest of the courses is little at the bachelor's level in all the scrutinized curricula, even if the names of the programs announce a supposed emphasis on these areas. There is a need to emphasize environmental and sustainability aspects beyond the idea that everything related to tourism in Costa Rica is irremediably linked to ecology, which, as the trends on tourism development in the last two decades has demonstrated, is not true at all.

At a master's level, four higher education institutions offer programs on fields that imbricate sustainability and tourism. The University for International Cooperation offers a master's program in sustainable tourism management, and incorporates four courses related to sustainability and natural resource management, out of 14 courses. The National University, in its master's program on Nature Tourism Management, offers one course –Resources and Sustainable Development– related to the area, out of 19 courses. The University of Costa Rica, in its program on Environmental Management and Ecotourism, offers three courses out of 18 related to the area of sustainability and resource management. The Tropical Agricultural Research and Higher Education Center has a program on sustainable tourism, with a substantial amount of courses (7 out of 12) related to either sustainability and/or resource management.

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Table 10. Sustainability and environmental education related courses in master's programs in Costa Rican universities

University	Master's Program	Total courses	Sustainability related courses
University of Costa Rica	Environmental Management and Ecotourism	18	3
National University	Nature Tourism Management	19	1
University for International Cooperation	Sustainable Tourism Management	14	4
Tropical Agronomic Center for Research and Teaching	Sustainable Tourism	12	7

Table 11. Master's programs course list on tourism and sustainability

University for International Cooperation's Master's Program in Sustainable Tourism Management	National University's Master's Program in Nature Tourism Management	Tropical Agronomic Center for Research and Teaching's Master's Program in Sustainable Tourism	University of Costa Rica's Master's Program on Environmental Management and Ecotourism
Tourism theory and development	Resources and sustainable development	Research applications	Natural systems
Conservation Biology	Tourism planning and management	International sustainable tourism	Ecotourism Project management
Tourism and natural patrimony	Tourism space management	Environmental impact assessment	Integrating seminar
Tourism planning	Cultural patrimony management in tourism	Hotel and restaurant operations	Qualitative research methods
Marketing fundamentals	Tourism product management	Tourism services management and marketing	Quantitative research methods
Site planning and sustainability	Tourism marketing	Planning and policy in sustainable tourism	Case studies
Project design I	Micro tourism companies management	Sustainable natural resource management	Environmental impact and decision analysis
Marketing applied to tourism	Economics of tourism	Context and challenges of applied sustainable development	Environmental and leisure economics
Quality systems and sustainability planning	Tourism product management	Environmental policies in a changing world	Workshop I
Project design II	Tourism policies and legislation	Seminars in sustainable tourism	Applied practice
International cooperation	Central American tourism seminar	Socio-cultural contexts of sustainable tourism development	Environmental law
Sustainable tourism product design	Landscape and conservation	Field practical professional	Territorial management
			Organizational dynamics and leadership

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3.4. Brief Analysis of the Balance between theory and practice in tourism education and development in Costa Rica: Some Weaknesses and Needs

Given the trends in tourism education and tourism development in Costa Rica in the last three decades, it is possible to notice certain matches between State policies and university curricula, but, at the same time, some discrepancies that show certain weaknesses that need to be strengthened and new trends to be introduced.

In the first place, at the bachelor's level, in the case of the University of Costa Rica, it is a fact that the curriculum of that major has not evolved, neither along the new trends and academic questions posed by State development policies ahead of the 1990's, nor with the most recent trends in tourism studies. In the case of other universities, such as the National University, or the National Technical University, or even the National Technology Institute, the emphasis on the business component, to use Tribe's typology, quoted earlier, tends to obliterate the non-business component or the sustainability component.

This non business component should include more tourism theory courses, and more epistemological, sociological and anthropological issues related to tourism, which would greatly help explain and deal with issues such as environmental and cultural impacts of other kinds of tourism development greatly promoted in Costa Rica, such as the sun and beach tourism on the Pacific coast. The same contribution could be attributed to the sustainability related courses, which are also scarce. The constant emphasis on the business component tends to locate tourism, in some of the analyzed programs, as an activity related only to services and transactions. The lack, or the scarcity of courses that question this approach may disregard, or at least leave behind, the study of practices within the activity of tourism which, in many cases, are detrimental to environmental and cultural issues also present and relevant in every tourism system.

At a graduate level, that is, in regards to master's programs, the emphasis would seem to be on sustainability, environmental management, and project management.

At first sight, these emphases would help to train students on focusing and solving

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issues related to the tourism development of Costa Rica in the last 20 years, and to implement more sustainable plans. However, one disadvantage of these programs is that most of them are professional master's degrees, except for the one belonging to the University of Costa Rica, which is academic. The other issue, stated before, is the small quantity of courses on sustainability and environmental management, even if the names of the programs promise otherwise.

This emphasis on the professional degrees rather than academic ones has also led to the fact that most of the research on tourism in Costa Rica emanates from other areas such as sociology, geography, anthropology, economics and cultural studies, among others, and not so much from the tourism schools. This dislocation can be noticed in the bachelor's curricula, where, as stated before, the emphasis continues to be placed on the business component of tourism; and obviously on public policies, more interested on attracting foreign investors and tourists, not always accompanied by proper planning.

In regards to coastal regions, where the Sede Regional Chorotega is located, very little of what is taught at both undergraduate and graduate levels is specifically designed to deal with detailed situations of these regions in the country. Costa Rica is a nation that has both the capital and the main cities located in the inland, at the center of the country, and the best infrastructure and most services are located there. Coastal regions have historically been seen and have functioned as peripheries, and in most cases depend on policies designed in San Jose or abroad to develop certain activities (among those activities, tourism, of course). Part of the training, especially at a graduate level, should deal with the special needs of the inhabitants and the environment of coastal areas of the country, which have received most of the direct investment resources, although, ironically, with no significant diminishment of poverty and inequality. In this sense, new theoretical and methodological frameworks should be introduced, especially in an academic program, that help close the gap that exists between the theory, the practice, and the public policies of tourism in the coastal regions of Costa Rica.

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3.5. Training paths at UCI

UCI offers diverse academic programs through a formal structure composed by faculties and schools. Here is a brief description of these. It is important to highlight that all of our programs has a sustainability component and in some cases sustainability is the principal focus, for example our Bachelor degree program.

Faculty of Project Management:

Master's in Project Management.

Project management is fundamental to any professional activity and has been a limiting factor for development. UCI is one of the oldest Global Education Providers of the Project Management Institute (PMI) in Latin America and is the first and only academic institution in Latin America to have been accredited by PMI. PMI is today the strongest worldwide organization in project management and is devoted to establishing knowledge areas and tools and standards to enhance project management.

Faculty of Law and Social Sciences:

Master's Program on Criminology with Emphasis in Human Security.

Today's society and the development model exclude parts of society from opportunities for development. This results in members of society having to seek other processes to satisfy their needs, generating criminal behavior or disrupting social standards and ultimately un-governance. Understanding the fundamental processes involved and giving students the skills necessary to cope with different aspects of human rights and human security in the search of solutions and better policies is the main focus of this program. A long standing collaboration with the University of Barcelona, one of the world leading institutions in this field, has earned top reputation for this program.

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Master's Program in Tax Law.

Program designed for professionals working with tax law and policies from both private and government sectors. It has a strong focus on public finances, laws and regulations of national tax systems.

Master's Program in Corporate Law.

Covers diverse areas related to modern enterprise administrative techniques and intensify thus the professional capacity for the analysis of complex legal situations. Has a strong emphasis on Corporate Law, covering in addition the fields of Economy, Accounting, Markets, Administrative Hiring, Labor, Tax and Customs Law.

Master's Program in Tax Advice.

Enables professionals to advise companies and institutions in the fulfillment of the fiscal obligations, offering the necessary tools to operate within the legal framework and audit functions and fiscal planning.

Faculty of Environment and Development

Master's Program in Environmental Leadership and Management.

This program trains professionals to lead the necessary technological and methodological changes for organizations, companies or institutions to achieve sustainability in production processes and services. Appropriate technology, even though existent since many years, is not being incorporated or only very slowly into many economic activities. This program incorporates state of the art processes in areas like cleaner production, corporate social and environmental responsibility, ethics, stakeholder participation, strategic planning towards sustainability and others.

Master's Program in Sustainable Tourism Management.

Tourism is the main economic activity in close to 50 of the less developed countries. Nevertheless, sustainable projects are rare and in most cases the activity is leading to the depletion of exactly those resources on which the industry is based, especially

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environmental and socio-cultural resources. This program incorporates the fact that adequate management of the tourism sector requires integrated approaches involving local communities, determination of carrying capacity, environmental impact assessments, local organization, marketing, and other knowledge areas.

Master's Program in Protected Area and Ecoregional Management.

This program is focused on the conservation processes of ecosystems and biodiversity, fundamental for sustaining life on the planet. The scope on protected areas is not limited to the boundaries of these and actually looks strongly on the participation of local communities in the buffer zones and connectivity areas to achieve an adequate management and use of natural resources to increase quality of life and at the same time guaranteeing biodiversity conservation. The focus on ecoregions gives the students an opportunity to think and act at adequate scales, both in terms of time and space. Integrated watershed management and other practices are brought into the decision making process.

Bachelor in Protected Area Management

This is currently the only program in Latin America that offers university degree training in protected area management. It is currently being offered to the Costa Rica Protected Area Agency (SINAC) but negotiations are being held with several countries to start the program within the next two to three years.

One Health Faculty

Master's Program in Management of Sanitary Programs with Emphasis on Food Safety.

This program was developed together with the Pan-American Health Organization to train professionals from public and private sector to adequately manage health programs involving food safety and food security.

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