Tropical Dry Forest Reforestation in Manabi, Ecuador

Global Student Embassy and FIDES (GSE) reforestation project works with the communities of Bahia de Caraquez and San Clemente in the coastal province of Manabi to restore degraded sections of the 'Cordillera del Balsamo', one of last semi-intact sections of Tropical Dry Forest (TDF) Ecuador. By implementing our year round Eco-Action Education program with more than 500 local students and 400 international students and contracting teams of local staff to plant and maintain reforestation sites, GSE's program creates jobs for young adults, provides field experience for young scientists, and achieves increasingly large scale, high quality environmental restoration. The results of our work will exemplify successful restoration of TDF. **We believe holistic, collaborative approaches to forest restoration are the best way to optimize ecological and social impacts of restoration**. We collaborate with:

- Local government, NGOs, schools, universities and passionate individuals
- Our Ecuadorian partner, La Fundacion para Investigation y Desarollo Social (FIDES)
- Our Ecuadorian TDF research and programmatic steering committee

On behalf of FIDES, GSE would like to request a $20,000 investment by World Centric, as part of a $61,062 project, to allow us to:

- Reforest 30 hectares of former highly degraded pastureland with Algarrobo trees
- Fund 'enrichment planting' of an additional 12.5 hectares of secondary regrowth habitat within the private preserve Peñon del Sol.

Through a program funded by the Ecuadorian Ministry of Agriculture (MAGAP), FIDES will be repaid the cost to plant and maintain the 12,000 trees planted on these lands plus an additional $2,400 for the production of the trees at $.20 a per tree. The money returned to FIDES through the MAGAP program will serve as seed funding for the following years' tree production and plantation installation thus making this part of the grant provide recurring benefit. Although FIDES reforestation staff will eventually integrate other species into these Algarrobo plantations, **the sustainable harvest of 5 – 20 years old Algarrobo for different uses ranging from fence posts to floor boards is a highly viable source of ecologically and economically sustainable income for land owners**.

GSE and FIDES, led by the research of our steering committee and Ecuadorian and USA based undergraduate field teams, have identified Algarrobo as the strongest pioneer species for the bioregion in which we are working in and it is also the only native tree included in MAGAP's reforestation program in the TDF bioregion. After 4 years, Algarrobos will establish a canopy cover and begin to stabilize the hillsides with their extensive root systems while depositing their leguminous seedpods and substantial leaf litter thus fertilizing the soil surface. FIDES, Ecuadorian early career scientists, GSE students and TDF steering committee will continuously mark sample quadrants of trees in different zones to carefully monitor changes in soil, biodiversity of plants and animals and canopy cover. Eight to twelve different species of native and endemic TDF trees will be integrated amongst the Algarrobos after 5 years.

The proposed implementation period for the $20,000 requested from World Centric is October 2015 – January 2017. Grant period success indicators will be:

- 85+% survival rate of 17,000 trees planted
- full time living wage work provided to 3 reforestation field site managers
- a 60% increase in local student volunteers.

Long-term (5+ years) success indicators:

- restoration of tree diversity
- improved soil quality
- revegetation and canopy cover of reforested areas
- bio-corridor connectivity
- careful documentation and presentation of TDF restoration strategies to the scientific and philanthropic communities to attract larger scale funders to significantly expand reforestation efforts in western Ecuador

Overview of the Problem: What set of problems and challenges will this project help solve?

Ecuador's central and southern coasts were once cloaked with TDF rich in biodiversity. Highly resilient species thrived despite minimal annual rainfall. Today Ecuador has lost an estimated 98% of its coastal TDF. While there is understandably a significant outcry over the loss of forest in the Ecuadorian Amazon, the deforestation and resulting desertification on the coast is often overlooked within Ecuador and in the international community. The Cordillera del Bálsamo (CdB) is an 11-mile section of deforested coastal mountains with significant sections of secondary regrowth TDF that stretches from Bahía de Caráquez (Bahía) south to San Clemente. **The area is one of the last remaining, semi-intact sections of TDF** within the transition zone from tropical humid forest of Northern Ecuador and to the east cloud forests in the foothills of the Andes to the coastal desert of Southern Ecuador and Northern Peru. Many factors contribute to the environmental ruin within the region including natural disasters, timber extraction for building and charcoal, grazing and farming practices, and most recently, large housing developments.

Increased urbanization, industrialization of agriculture, and desertification has led to a diminished connection to nature by coastal Ecuadorians as well as a decreased bio-connectivity for fauna living in the last remnants of TDF. Through our Eco Action program, GSE's staff teaches 500 local students about environmental stewardship and of the causes and effects of deforestation. GSE students from Ecuador and USA, and FIDES's crew of reforestation contractors (1 of whom is a GSE leadership club graduate) will reforest and care for 25,000 – 30,000 trees total of 6 native species in 2016. In addition to the project outlined, GSE will reforest an additional 8,000 – 13,000 trees and fund the expansion of our local Eco Action Education programs to include an additional 200 students. The production of the trees through our Eco Action programs reduces the overall cost of the maintenance intensive restoration of TDF.

Reforestation in Bahía has traditionally had very low success rates. The lengthy dry season, previous lack of reliable information about the most resilient native species, and rugged geography have made it more difficult than reforestation in humid climates. There is little research into TDF loss and even less into reforestation. TDF loss worldwide has been overlooked - from 1945–2005, papers on TDFs compared with those on rainforest ecosystems were published at a ratio of just 1:300 (Sanchez-Azofeifa et al. 2005).

Support from World Centric will enable GSE and FIDES to continue to pilot and demonstrate effective restoration strategies as both organizations contribute increasingly to this lacking body of knowledge.

Explanation of FIDES strategy for participation in the Ministry of Agriculture (MAGAP) Agroforestry Incentive Program

The MAGAP Agroforestry Incentive Program is an initiative offering reimbursement to land owners for the reforestation of commercially viable tree species. The concept is that there are not many timber reserves within Ecuador and to reduce future deforestation and reduce the need for importing timber, the government is incentivizing the planting of lands with commercially valuable trees. FIDES sees this as an opportunity to have funding for tree planting projects focused on land restoration. Our region of focus has very degraded soils and low average rainfall. Only two species included in MAGAP's program are viable: Algarrobo and Neem. Neem is not a native species and can inhibit other vegetative and beneficial insect population growth in soils. Algarrobo has also been identified through our observations to be the strongest native pioneer species.

The table below outlines each partner in the MAGAP program, with FIDES as the implementation partner:

Partner	Description	GSE Goal or Relationship
MAGAP program	Up to $1,450 over four years; based on survival rate	At least 85% survival by planting larger trees (40 cm tall); replace dying trees after year one
Juan Carlos Salazar	Certified forest engineer	Create documentation for MAGAP program
Rafaella Belletini	Landowner providing access for this pilot program	Implement described plan on close to 40 hectares; protect the watershed downstream from the Belletinis (water source for the Fanca neighborhood in Bahia)
FIDES	Implementation partner	Provide compost blend and Algarrobo trees; maintain bookkeeping and payroll

Structure of the collaboration between FIDES and GSE

GSE prioritizes developing partnerships and common vision among diverse groups. Due to the growth of GSE's activities in reforestation and conservation, we developed a contract for administrative services, monitoring, and evaluation with FIDES, which was established to provide administrative support to 5 community-based ecology and agriculture projects in Manabí. The objective of the contract between FIDES and GSE is to establish an alliance between the two organizations to coordinate efforts and institutional resources to run the project "Reforestation of the Cordillera de El Balsamo of Native Species."

FIDES, based in Puerto Viejo (capital of Manabí), provides a connection for GSE and the Cordillera del Balsamo Association to regional Universities and the Manabí Ministry of the Environment (MAE). MAE issues permission for research and funding for reforestation from the federal government. FIDES shares GSE's ambitions to reforest the CdB and is seeking funding for the project from United Nations Small Grants program and Ecuador's MAE.

In collaboration with FIDES and GSE, the following organizations and schools will participate in this project: Colegio Nacionale Fanny de Baird, the youth and young adults of the community of Bellavista, and the private preserves that form the Association of the Cordillera del Balsamo.

Project Team to Lead Efforts

GSE Ecuador Director Ramon "Moncho" Cedeño Loor and FIDES Executive Director Jairo Diaz will lead the project.

Moncho is a Bahia native and the principal architect of the reforestation project, managing all Ecuadorian staff, fellows, and international trip leaders. Jairo serves as the Executive Director of FIDES and assists GSE with program planning, carries out progress reports, and prepares grants proposals submitted to Ecuadorian funding sources. Moncho and Jairo will manage the work of the following individuals:

- Jaime Andrade, Consultant, Propagation and Seed Collection Manager (GSE/ FIDES), manages site activities including propagation and maintenance strategies.
- Blas Loor, Reforestation Site Manager (GSE/ FIDES), is the on-site manager and trainer of both volunteer and contract planting and maintenance teams.
- Florito Intriago, Planting and Maintenance Team Leader (FIDES), assists Blas.
- Jorge Canchingre, Planting and Maintenance Staff member (FIDES) will assist Blas with training.

- Joselin Hernandez, Eco Action Program Coordinator
- Denisse Cayetano, Accountant (FIDES), oversees all administrative and bookkeeping activities.

GSE Executive Director, Lucas Oshun, leads the Steering Committee to provide consultation and some management for the TDF reforestation project. **The committee represents the added value that GSE's organization brings to the TDF reforestation project led by FIDES and the Ecuadorian staff team.** Its members include:

- Dr. Stuart Hamilton, Researcher/ Professor at Salisbury University Maryland
- Lucas Oshun, GSE's Executive Director (GSE)
- Donald Hagan, Lecturer/ Researcher Clemson University
- Xavier Carrion, PHD Student at University of Florida
- Jasper Oshun, Associate Professor of Geomorphology/ researcher Humbolt State University
- Ben Gordon, former financial analyst for Charles Schwab, current graduate student researcher at UCB in the Masters of Development Practice

Biographies of each project staff and steering committee member can be found in Appendix A.

Other Project Partners - organizational allies involved in the project and what will they do

Fanny de Baird is a high school with more than 1,100 students located in Bahía. GSE's program in Bahía began at the high school where GSE Ecuador Director Ramon Cedeño Loor was a biology teacher. 9,000 trees were produced in the Fanny greenhouse this year by GSE's Eco Club and students regularly participate in field trips to reforestation sites to help with planting and care of trees.

Bellavista is a low-income neighborhood on the northernmost edge of the CdB and the location of one of our production greenhouses. GSE Ecuador director Ramon lives in Bellavista and 75% of our contract reforestation staff are young adults hired from the neighborhood. GSE has planted 900 fruit trees in Bellavista at residences over the past 2 years.

GSE's Ecuadorian staff, teachers and high school administrators, local environmental NGOs connected to the private preserves of the CdB (Planet Drum and Cerro Seco), the Universidad Catolica, and the Municipality of Bahia make up GSE's Ecuadorian network of collaborating organizations. In 2016 we will partner to develop a large municipal greenhouse for tree production for future reforestation efforts.

US collaborators include high school and university student leadership groups, researchers, instructors, and administrators, donors; and GSE US staff and board.

Land owners of the CdB's private preserves register their land with the Association of Private Forests in Ecuador and commit to conservation. In the past year the group received support from Global Environment Facility and Darwin Net to conduct reforestation and develop advocacy strategy and ecotourism marketing plans. GSE's Director Ramon is the current president of the association.

In the process of learning the best methods to achieve high survival rates of TDF planting over the past 5 years, GSE has built funding and academic research relationships with 7 universities. Examples of academic partnerships include study of erosion rates, root strength of different tree species to judge erosion mitigation, the sedimentation of the Chone estuary, land use change, and loss of mangroves to aquaculture works. More information available upon request.

Local Context, Readiness, and Resources: Local and international opportunities and assets this effort will draw upon.

FIDES and GSE are working to expand the environmental movement in Bahia that began 12 years ago when the city was declared an Eco City. In 1997 and 1998 the city suffered natural disasters from el Niño and a 7.2 earthquake that destroyed much of the city and killed 25 people. Approximately 35% of the city's population left after the disasters and the Eco City plan was enacted to mitigate future disasters and to draw eco tourism to rebuild the economy. Destruction of neighborhoods was primarily due to landslides and soil erosion from deforested hills, and reforestation was defined as a means of mitigating future disasters.

Planet Drum Founder Peter Berg, a 'bioregional' author and environmental activist from San Francisco traveled to consult with the city in 1998 to develop the Eco City plan. Bicycle taxis, after school programs for elementary students by Planet Drum, a challenged compost and recycling program, and work with local NGOs to reforest small areas of public land have been among the only outcomes of Bahía's vision prior to GSE programs. The ideological groundwork has been laid however and there is openness from regional and local government, educational institutions and from local environmental groups to develop larger scale projects.

Organizational Background: What has been the history and goals of your organization and coalition of partners that has positioned you to be uniquely qualified take on this project?

GSE's work in the community of Bahía began in 2009, and our goals for environmental restoration and education developed through relationships with local environmental leaders, landowners, educators and government officials. Our program grew from a student leadership group of 10 students at Fanny de Baird the first year to over 350 students currently participating in 'Eco Action Programs' weekly at 4 schools. Today, GSE has more than 3,000 weekly participants in school garden and environmental project based learning programs between Ecuador, Nicaragua and USA. GSE has brought more than 600 high school and university students and teachers and professors from USA to participate in reforestation at Punta Gorda and around Bahia over the past 5 years. With the revenue generated from the enrollment in these exchange programs we have funded the development of our reforestation and environmental education programs in Bahia and surrounding areas and grown the local tourist economy.

GSE's network of undergraduate science departments in USA is extensive. We have regular communication conservation biology, forestry, GIS, hydrology, landscape architecture professors and a number of other departments. GSE co-founder, Jasper Oshun, introduced GSE to Bahia through his volunteering with Planet Drum in 2009.

Recent Achievements

- In 2014 GSE/FIDES reforestation project and Eco Action program received 3rd place for the 'Premio Verde out of hundreds of environmental programs in Ecuador. The Premio Verde is an award granted by Ecuador's Federal Bank. GSE staff traveled with Bahia's mayor to Quito and met with the director of the 'Banco del Estado' the Minister of the Environment and the leaders of 20 other projects.
- Presentation of poster on root strength analysis in the Ecuadorian TDF at American Geophysical Union conference in San Francisco by UC Berkeley undergrads, led by Jasper Oshun (copy of poster available upon request).
- 50% success rates last year despite very severe and the planting of some native but weaker species. Reforestation by many other groups in 2014 Manabi resulted near to 100% mortality.
- 500% growth in local volunteer participation in Bahia over the past 2 years.
- UCSB Bren School "Project group" capstone. GSE ED facilitated a group of masters students from the Bren School to study sedimentation of the Chone Estuary. Working with Bren School Dean Steve Gaines, the group presented management recommendations for strategic mangrove reforestation in Spring 2015.

Organizational Structure: What is the organizational and governance structure of your organization?

GSE's international programs are directed in partnership between GSE's Executive director and Nicaraguan and Ecuadorian program directors. Lucas and Moncho work together to make major logistical project decisions related GSE's Ecuador program while Moncho has direct oversight of all members of the reforestation team, fellows, and international trip leaders.

Lucas develops international and domestic partnerships. GSE's Managing Director, Mallory Bressler oversees Program Coordinator activities at 17 Bay Area high schools. In the US, four Program Coordinators work directly with students teaching garden and leadership workshops (Eco Action Education). GSE is governed by a Board of Directors made up of professionals in the fields of education, environmental science, venture capitalism, accounting, and non-profit management/consulting. Please see http://www.globalstudentembassy.org/about-us/our-team/board-of-directors-advisory-board/ for more information about GSE's Board.

Budget Narrative

The project described above provides critical reforestation and maintenance care of degraded land. The cost per hectare is roughly $1,400 over two seasons. This cost includes the coordination of Eco Action programming related to reforestation that is at the core of GSE and FIDES' shared vision, and goes above and beyond typical reforestation projects.

Budget for Ecuador: Reforestation of 42.5 hectares

The following budget depicts costs associated with planting 30 hectares of algarrobo and enriching 12.5 additional hectares. October 2015 to January 2017.

Project Expenses	
5-person work team (10 months)	20,000
5-person student work team (4 months)	8,000
Greenhouse Manager & Lead Educator @ 70% FTE	7,350
Greenhouse Consultant @ 25% FTE	2,042
Ecuador Director @ 35% FTE	6,860
Student & Volunteer Coordinator (3 months)	1,625
GSE U.S. Executive Director @ 10% FTE, 6 months	3,685
Tools (post-hole diggers, machetes, etc)	7,500
Transportation	4,000
	$61,062
Project Income	
Costs Funded by GSE	36,062
Individual donor (pending request)	5,000
Funds Requested from World Centric	20,000
Total	**$61,062**

Personnel, Consultants & Volunteers Responsibilities

- GSE/FIDES will coordinate the work of 5-person work teams to implement a large portion of the project's work. The teams will be led by Jorge Cachingre. $28,000 total.

- The Greenhouse Manager (Blas Loor) will manage field sites and the reforestation team
- Blas will work in consultation with the Greenhouse Consultant (Jaime Andrade), who will provide expertise on the Corillera del Balsamo, direct species composition of sites, propagate trees, and assist with maintenance strategy.
- The Ecuador Director (Moncho) will provide leadership, oversight, and coordination between all parties.
- A Student & Volunteer Coordinator will be hired to organize all efforts of students and volunteers.

Through engagement in Eco Action Education curriculum, GSE student volunteers will make significant contributions towards seed collection and propagation and will work alongside fellows and reforestation teams. By harnessing the energy of local high school and university student volunteers we are able to achieve species diverse reforestation while decreasing the costs associated with reforestation in the TDF.

Other Project Costs
GSE's Executive Director will dedicate roughly 10% of his time to seeking additional support for the project, coordinating efforts with the various parties, and participating on the steering committee.

Finally, the project will require a modest investment in tools and transportation in order to reach its stated goals.

Project Continuation and Fundraising Plan: What is your plan for supporting this project financially and building your funding base?

GSE will continue to invest $20,000 to $45,000 from our fee for service income in Cordillera del Balsamo and mangrove reforestation. We justify this investment with our mission by noting that as an environmental action education and youth leadership organization, it is important that we are responsible for our environmental footprint. With more than 500 students traveling abroad this year to participate in agroecological and environmental restoration programs in Ecuador and Nicaragua, investing in TDF reforestation is one way we offset our footprint. GSE is receiving increasing funding and recognition for our Bay Area Eco Action Education school garden leadership programs and for our Nicaraguan Biointensive school farming programs. This means that the discretionary use of our fee for service income can be invested into reforestation. As part of our fundraising strategy, hundreds of GSE students sell artisanal fair-trade chocolate that is sourced from Ecuador. In 2014 and 2015 GSE students sold 15,000 bars.

FIDES is leading GSE in applying for grants from the United Nations Small Grants Program and Ecuador's Ministry of the Environment's new "National Restoration Plan". FIDES originally reached out to GSE to offer their services because they were interested in supporting the expansion of ecotourism and reforestation in the Cordillera del Balsamo. Led by Moncho, GSE has become a clear leader for the efforts in the Cordillera del Balsamo, is the largest mobilizer of volunteers and is reforesting the largest areas. By investing our earned income to demonstrate increasing success and scope of work, it is our goal that we will be able to successfully solicit support from the Ecuadorian Ministry of the Environment, from larger NGOs and from international foundations.

This year our Ecuador reforestation and Eco Action programs have received funding support from the Hansen Foundation and from the founders of "Maker Faire" through their foundation: the Nancy and Dale Dougherty Foundation. These groups have supported GSE for 3 and 6 years respectively and they have recently become enthusiastic about supporting the growth of our reforestation work. We feel we can count on their continued support.

The work in the Cordillera del Balsamo is compelling to funders because it has the potential to catalyze a broad movement and because of the high level of environmental degradation in costal Ecuador. Due to the breadth of GSE's network and organizational and our growth trajectory, we are well positioned to identify new funders and champions for restoring Ecuador's tropical dry forest.

Appendix A: Biographies of Key Project Staff and Steering Committee Members

Ramon "Moncho" Cedeño Loor, Ecuador Director (GSE) – Moncho, a Bahia native, is the principal architect of the reforestation project. Moncho and his brother Blas are third generation Bahia residents. Moncho's father was among the first stewards of the forest, rallying the community around conservation. He graduated from the Universidad Tecnica de Manabi with a teaching degree in Chemistry and Biology. He was worked as an environmental educator his entire life and for the past 6 years worked with Planet Drum as a community educator around the theme of reforestation. Loor has managed the logistics for international exchanges of over 300 local and international students in addition to managing the planting and maintenance of 30,000 trees. Moncho is the president of the Association of the Cordillera del Balsamo is an integral part of the environmental leadership community that is growing in Bahía and advocating for reforestation and stricter enforcement of Ecuador's progressive environmental policies.

Jaime Andrade, Consultant, Propagation and Seed Collection Manager – Jaime is considered throughout Bahia to be the leading specialist on best reforestation practices. Though lacking a formal university degree, Jaime is a naturalist who has been reforesting the TDF in various ways for over 12 years. He is born and raised in Bahia and was the interim director of Planet Drum for a year where he initially trained Moncho. Jaime also worked for the reserve, Cerro Secco for 3 years. Jaime will be the chief consultant for propagation and seed collection for the project.

Jorge Cachingre, Planting and Maintenance Team Leader (GSE) - A former GSE student leader for the Eco Club at Fanny de Baird, Jorge did more than 90 days of planting and maintenance, the most of any student volunteer. After he graduated he did 12 months military service and returned to Bahia in order to work for GSE full time. He is a highly skilled site worker and natural leader.

Blas Loor, Reforestation Site Manager (GSE) - Blas grew up in the TDF working alongside his father and older brother, Moncho. Prior his position with GSE, Blas worked for Conica and Pronto Color as an Administrative Manager. Blas began as a volunteer coordinator training students to use reforesting tools. He was brought on full time as site manager as he is natural leader and diligent worker. He is a highly skilled reforesting technician with all major tools needed for proper reforesting like machete use, post-hole digging, and watering management.

Lucas Oshun, Executive Director (GSE) – Lucas graduated from University of California Santa Cruz with degrees in Community Studies and Politics with a focus on International Relations. Lucas has 6.5 years of volunteer coordination experience on ecological restoration projects. He is the founder and director of GSE since 2008. Lucas has overseen 3 years of planting in which a cumulative 24,000 trees were planted in the Cordillera del Balsamo as well as the planting of 3,000 oak and willow trees in Northern California. Lucas received the Jefferson Award for Public Service in the Bay Area and the Red Cross award for Environmental Service. He has overseen the development of 14 School Garden programs at separate education institutions and has built GSE to a staff team of 15 people across 3 countries. Lucas will support program design, fundraising, recruiting students, and leading student trips.

Jairo Dias, Executive Director (FIDES) - Jairo has been working for NGOs on agricultural and environmental projects since 1989 and before starting FIDES he worked as a consultant, facilitating organization development and monitoring and evaluation for CARE, Fundacion Pachamama, and World Vision. He graduated with a degree in Economic Sciences at the Universidad Central del Ecuador.

Denisse Cayetano, Accountant (FIDES) – Denisse is a graduate of the Universidad Tecnica de Manabi with degrees in Accounting, Public Authority, and Auditing. She has worked as the accountant for FIDES for the past 2.5 years.

Dr. Stuart Hamilton, Consultant – One of the key research consultants to the project, Dr. Hamilton worked on mangrove restoration projects in the Chone estuary for the past 3 years. Last year he transferred from William and Mary to Salisbury University in Maryland to focus more time on land use research in Ecuadorian estuaries. He was awarded the Prometeo Award to continue sedimentation studies in the Chone Estuary. Dr. Hamilton is the former head of the GIS department at William and Mary, has been contracted numerous times by USAID for monitoring and evaluation support for large-scale reforestation projects in Africa and Latin America.

Additionally, FIDES is an NGO that was granted legal authority by the Ministry of Economic and Social Inclusion on 9 March 2009 by Ministerial Agreement No. 0030, with headquarters in the city of Portoviejo, province of Manabi, whose purposes are: (a) to contribute to the promotion of human development and economic welfare in socially, culturally and environmentally vulnerable sectors of rural and urban regions (b) to promote organization and citizen participation with a focus on gender. By strengthening local institutional capacities. (c) to contribute to the development of education and to the creation of public policy, through social research, and implementation of projects and development.

Steering Committee Members

Dr. Stuart Hamilton, see above

Lucas Oshun, see above

Donald Hagan, Lecturer/ Researcher Clemson University – Donald volunteered 2 years in the Peace Corps in Bahia and worked closely with Ramon on Reforestation and environmental education projects in 2002 and 2003 and later went on to get his PHD in Forestry Engineering at university of Florida. Currently Donald is working to establish a research project in Bahia with GSE to conduct a Landscape Ecosystem Classification (LEC) of different potential reforestation site to provide data for strategic species selection in different soil types and microclimates.

Xavier Carrion, PHD Student at University of Florida – Xavier is the newest member of the steering committee and is a an Ecuadorian national conducting bio-connectivity research under TDF researcher and professor Stephanie Bohlman at University of Florida. Xavier is the only scientist we know who is exclusively dedicated to a career studying environmental restoration research in the TDF of Western Ecuador.

Jasper Oshun, Associate Professor of Geomorphology/ researcher Humbolt State University – Jasper is a co-founder of GSE and leads undergraduate research groups to Bahia to study the TDF soils annually, thereby expanding interest in researching the critically damaged bioregions of coastal Ecuador.

Ben Gordon, former financial analyst for Charles Schwab, current graduate student researcher at UCB in the Masters of Development Practice – Ben is a GSE board member and is focusing on researching cost structures and marketability of Algarrobo and other sustainably harvested agroforestry products that are viable for production from the Ecuadorian TDF. David Zilberman Professor of Agriculture and Resource Economics will be advising Ben's project.

Appendix B: FIDES Annual Operating Budget

FIDES Operational Budget

The following shows the operational budget for FIDES, including all fixed costs of operations.

Operational Expenses	
Salaries and social benefits	50,450
Executive Director	20,753
Project Coordinator	20,753
Accountant	8,943
Basic services	1,900
Office supplies and rent	3,648
Materials and other services	2,000
	$57,998