



THE UNIVERSITY OF THE WEST INDIES
ST. AUGUSTINE CAMPUS

Knowledge Mobilisation in Service of Development - On the Path to Impact



Impact Highlights
from Completed
RDI Fund Projects



OUR IMPACT

31
PROJECTS
FUNDED

\$ 17,432,428
TOTAL FUNDS AWARDED


118 GRADUATE
STUDENTS

23
PEER
REVIEWED
JOURNAL ARTICLES

26 
THESES

78
PRESENTATIONS


WORKSHOPS & SEMINARS


60
PRINT MEDIA MENTIONS

>153
NEW PARTNERSHIPS

**MORE THAN 200 COMMUNITIES
REACHED**

>\$5M FUNDING FOR
FOLLOW-UP /
SPIN-OFF
PROJECTS

MORE THAN \$30M
EXTERNAL FUNDING ATTRACTED
(Cash and in-kind)

Knowledge Mobilisation in Service of Development

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Postal address: Office of the Campus Principal, The University of the West Indies, St. Augustine, Trinidad

Telephone: (868) 662-2002 ext. 84427 | **Facsimile:** (868) 662-0600 | **Email:** rdifund@sta.uwi.edu | **Home page:** <http://sta.uwi.edu/rdifund/index.asp>

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FOREWORD

Established in 2012, the University of the West Indies –Trinidad and Tobago Research and Development Impact Fund’s principal purpose is to support research projects which address pressing development needs in society, primarily in six priority areas linked to national development goals, with the intent to achieve recognizable and substantive impact in the short and medium term (3-5 years).

The RDI Fund is committed to enhancing the impact of UWI research by encouraging RDI Fund projects to ‘plan for impact’ by embedding this approach throughout all stages of the research process and ‘to mobilize knowledge for development’ by directly engaging key stakeholders and widely disseminating research findings and outputs. By emphasizing this approach, multi-disciplinary research teams are encouraged to establish connections between university research, knowledge users and decision makers so that research can have an impact on policy, practice, new products, services, ways of thinking, attitudes and behavior, which ultimately contribute to improving the well-being of society. The Fund also brings a new element to academic research by incorporating project management, monitoring and evaluation, impact assessment, knowledge management and strategic

communication in our management strategy to ensure that projects progress in reasonable time and remain committed to achieving real impacts in the lives of citizens of Trinidad and Tobago.

This publication reflects on the early impacts of the 1st cohort of completed projects funded by the RDI Fund. This compilation serves not simply to report on the activities of the Fund and its grantees. More importantly, it serves to demonstrate the immediate impact of this focused investment by the Government of the Republic of Trinidad and Tobago, as the sole donor to the RDI Fund, and the latent potential for impact in the short to medium term. This demonstration underscores the importance of providing dedicated seed funding for research and validates the benefits to be gained from this model of grant research funding.

It is our hope that the stories captured in this publication serve to strengthen linkages and stimulate opportunities for future engagement, collaboration, funding and partnerships. Our aim is to present a coherent package showcasing the quality and diversity of research being undertaken at the UWI, through the lens of impact, which will deepen the understanding of and appreciation for the value in mobilizing research for development.



Debra Coryat-Patton
Senior Programme Manager
Office of the Campus Principal, UWI STA
RDI Fund Secretariat



Lois St Brice
Project Management Officer
Office of the Campus Principal, UWI STA
RDI Fund Secretariat

MESSAGE FROM THE CHAIR



Although the RDI Fund is only four years old, I am pleased to report that this unique research funding methodology is already bearing fruit, not only within the walls of our institution through encouraging more multidisciplinary research and increasing the number of research opportunities for our staff and students, but also in the early outputs and impacts being reported, some of which are captured in the Impact Briefs contained in this publication.

Projects funded by the RDI Fund are increasing data access in a wide range of fields and facilitating evidence-based decision making, with many project outputs already informing policy in several key Ministries and state agencies including the Trinidad and Tobago Police Service, the Trinidad and Tobago Solid Waste Management Company, the Environmental Management Authority, the Tobago House of Assembly, The Ministry of Agriculture, The Ministry of Planning, and many more. Many RDI Fund projects are also providing new opportunities for commercialization, driving the diversification agenda and increasing efficiency and competitiveness in several sectors, an important outcome given the tough prevailing economic circumstances we face at this time.

As Trinidad and Tobago and the wider Caribbean region join the rest of the world in adopting the United Nations' 2030 Agenda for Sustainable Development, the RDI Fund is uniquely poised to bring the expertise and the research capacity of the country to bear on the seventeen Sustainable Development Goals (SDGs) agreed to by UN member states on September 25th 2015. RDI Fund projects are already providing the indigenous knowledge necessary to localize both the implementation of the goals as well as the monitoring of our progress. Research and innovation will be key drivers to discovering new solutions on the path to truly sustainable development. Research will also be critical if the country and region is to join the data revolution needed to facilitate evidence-based policy making and establish baselines to monitor our performance, particularly in this region which is so often cited as being data poor. The relevance of the RDI Fund in our society and at this time in our development is fortuitous as the Fund's priority areas impact on each of the SDGs agreed upon by the global community.

It is my firm belief that by continuing to support quality research, efficient project execution, and ongoing stakeholder engagement, the RDI Fund will continue to serve as a vehicle to demonstrate the Campus' responses to development challenges, thereby fostering a greater appreciation in our stakeholders of the value and impact of research, innovation and knowledge transfer.

Professor Clement Sankat

*Pro Vice-Chancellor and Campus Principal
The University of the West Indies,
St. Augustine Campus*

Linking RDI Fund's Priority Areas to the United Nations Sustainable Development Goals



REFLECTIONS ON THE RESEARCH AND DEVELOPMENT IMPACT FUND

The Mission Statement of the University of the West Indies at its establishment begins ‘To unleash West Indian potential for economic and cultural growth by high quality teaching and research aimed at meeting critical regional needs’.

Some 68 years later, this responsibility to conduct research, generate knowledge and seek ways to ensure that the knowledge generated significantly impacts national and regional development is felt even stronger by the UWI, for we now live in an era of knowledge-based economies. Moreover, and very importantly in the context of the University’s Research Agenda, the UWI is located in and serves a developing region of the world. A significant focus of our Research Agenda must therefore be to address the problems and challenges that constrain national and regional development and ensure that our research has significant and measurable development impact. But how do we ensure this? How do we strengthen the engagement between scholarship and development?

A major leap forward in this context was the brainchild of the Principal of the St. Augustine Campus, Professor Clement Sankat who, with his supporting staff in the Office of the Campus Principal, and particularly Ms. Stacy Kennedy and Ms. Lois St. Brice, conceptualized, designed and drove the development and operation of the UWI-Trinidad and Tobago Research and Development Impact Fund... an ideal partnership between the St. Augustine Campus and the Government of Trinidad and Tobago. The initiative began with a Workshop entitled ‘Setting Research Priorities for the UWI St. Augustine Campus’ out of which emerged six priority research areas in which action was clearly needed to overcome constraints to national development; but the innovative nature of this new initiative went far beyond that. What set the RDI Fund apart from previous research funding programmes was the key criterion that the proposed



project must have a significant and measurable impact on national development. Researchers needed to demonstrate, in advance, not only that the data which they intended to acquire was critically needed to address a development constraint, not only that the methodology they intended to use to acquire the data was robust and sound, but most importantly, they needed to think through and document **from the onset** exactly how the proposed work would have development impact in the short and medium term, and exactly how they would engage with the relevant stakeholders to ensure that this happened.

The RDI Fund was innovative in concept and efficient in governance and operation, but beyond this, inherent in its design was the seed that could create, nurture and build the core relationship between knowledge producers and knowledge users necessary to drive national development ... a relationship that sets the foundation for the development of a National Innovation System for Trinidad and Tobago. The RDI Fund is simply a best practice that we are now attempting to export to our other UWI campuses. We take this opportunity to express our thanks and appreciation to Professor Clement Sankat for the progressive and innovative leadership that led to the creation of the RDI Fund at the St. Augustine Campus of the University of the West Indies.

Professor Wayne Hunte

Director, Office of Research Development and Knowledge Transfer, UWI STA



"By breaking down the barriers between knowledge producers and knowledge users, the RDI Fund can serve as a catalyst in the process of knowledge mobilization for greater transformational change and development impact in the society".

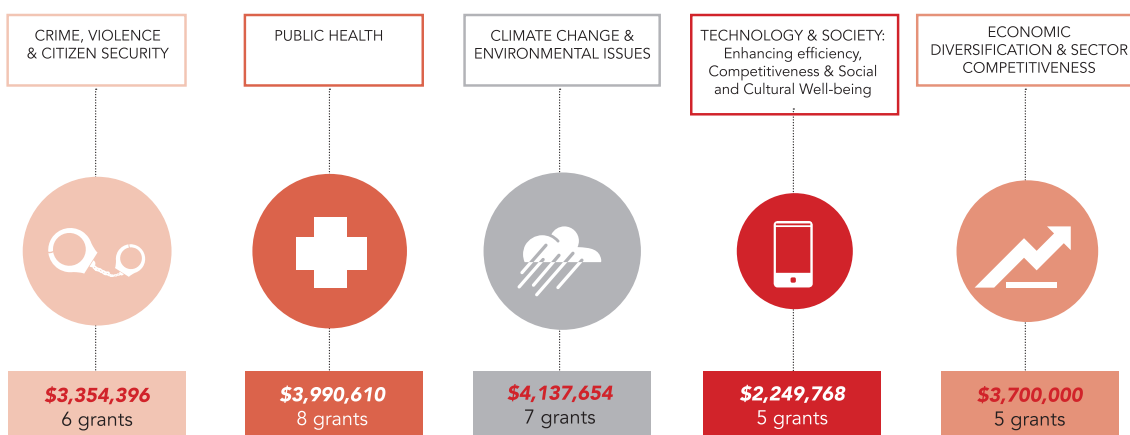
*Professor Clement Sankat
Pro Vice-Chancellor and Campus Principal
The University of the West Indies,
St. Augustine Campus*

OVERVIEW OF THE RDI FUND PROJECT PORTFOLIO

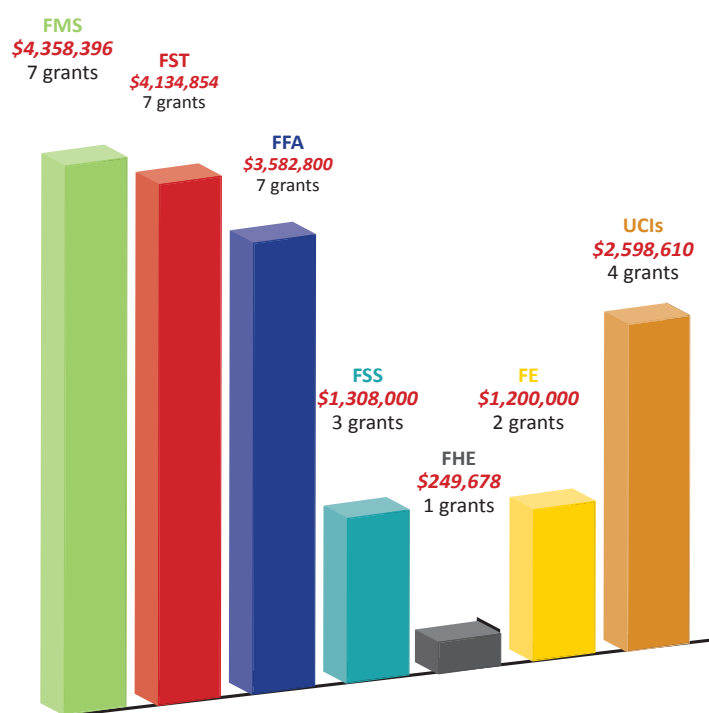
The RDI Fund has issued three Calls for Proposals since its establishment in 2012. From the eighty five concept notes submitted in 2012, 2013 and 2014, thirty one projects were approved and awarded grant funding

totaling \$17,432,428. To date, sixteen of these projects have submitted completion reports, three have been cancelled and the remaining twelve projects are at varying stages of implementation.

Funding/Projects by Thematic Area



Funding/Projects by Faculty



Approved Projects

Climate Change & Environmental Issues				
Year Awarded	Title of Concept Note	Team Leader	Amount Awarded \$TTD	Status
2012	Evaluation of the Economic Value of Caroni Swamp: Implications of Climate Change using the UNEP TEEB protocol	Prof. John Agard	\$954,854	Completed
2012	The Impact of the contaminants produced by the Guanapo Landfill on the surrounding environment	Dr. Denise Beckles	\$1,000,000	Completed
2013	Terrestrial Flood Risk and Climate Change in the Caroni river basin: Adaptation Measures for Vulnerable Communities	Dr. Matthew Wilson	\$550,000	Completed
2015	Society, turtles and environmental change in Grande Riviere Bay-towards sustainable management of a vulnerable community: an investigation into the interrelationships between terrestrial and coastal systems which impact the beach habitat of the endangered leatherback turtle.	Dr. Junior Darsan	\$300,000	Scheduled End Date 31-Oct-17
2015	Promoting Agriculturally Important Microorganisms To Address The Challenges In Food Safety And Food Security In The Caribbean	Dr. Duraisamy Saravanakumar	\$600,000	Scheduled End Date 30-Apr-18
2015	Technological Solutions for improved Agro-environment and Sustainability of Agricultural Development	Dr Wendy-Ann Isaac	\$332,800	Scheduled End Date 30-Apr-18
2015	An Assessment of the Beach Erosion and the Coastal Flooding Hazards at selected sites along the Trinidad and Tobago coastline through correlation analyses of the short- to medium-term variations in the morphological, hydrodynamic and environmental conditions and through detailed numerical modelling.	Dr. Deborah Villarroel-Lamb	\$400,000	Scheduled End Date 30-Apr-18
			\$4,137,654	
Crime, Violence & Citizen Security				
2012	Analysis of Intervention and Counseling for At Risk Youth to Reduce Crime, Violence and to Improve Outcomes for the Individual, The Schools, and the Family	Dr. Sandra Celestine	\$500,000	Completed
2012	A Multi-centre phase 3 cluster randomized controlled trial of a manualized anger management intervention for prisoners at risk for uncontrolled anger and aggression	Prof. Gerard Hutchinson	\$999,396	Completed
2013	Crime Victimization and Fear of Crime Survey in Trinidad and Tobago	Dr. Derek Chadee	\$549,600	Completed
2013	Adult Sexual and Physical Intimate Partner Violence Survey & Public Health Intervention (ASaP IPV Survey & Public Health Intervention)	Prof. Gerard Hutchinson	\$547,000	Cancelled
2013	A Matter of Survival: A life course approach to understanding the decision-making and economic livelihoods of school dropouts in T&T	Dr. Priya Kissoon	\$500,000	Completed
2015	Situational Analysis of Children of Prisoners in Trinidad and Tobago	Ms Karene-Anne Nathaniel	\$258,400	Cancelled without Prejudice
			\$3,354,396	
Economic Diversification and Sector Competitiveness				
2012	Understanding Built and Cultural Heritage in East Port-of-Spain	Dr. Asad Mohammed	\$800,000	Completed
2012	Towards Re-development of a Competitive Citrus Industry in Trinidad and Tobago and the Greater CARICOM Area	Dr. Govind Seepersad	\$600,000	Completed
2012	Leveraging the International Cocoa Gene Bank to Improve Competitiveness of the Cocoa Sector in the Caribbean, using modern genomics	Prof. Pathmanathan Umaharan	\$1,500,000	Completed

2013	Language and Competitiveness: Positioning T&T for Sustainable Development	Dr. Beverly-Anne Carter	\$500,000	Completed
2015	Genetic Evaluation, Breeding and Propagation of Germplasm for the development of Dairy Goat Industry in Trinidad and Tobago	Dr. Nandakumar Puliath	\$300,000	Cancelled
			\$3,700,000	
Public Health				
2012	Use of next generation molecular and evolutionary epidemiology to strengthen surveillance and develop models to predict and prevent the spread of Dengue	Prof. Christine Carrington	\$800,000	Completed
2012	Identification of the reservoirs of animal influenza viruses in Trinidad and Tobago	Dr. Christopher Oura	\$800,000	Completed
2012	Surveillance, characterization and management of antibiotic resistance in common bacterial pathogens in Trinidad and Tobago	Dr. Jayaraj Jayaraman/ Dr. Patrick E. Akpaka/ Dr. Adesh Ramsubhag	\$550,000	Scheduled End Date 2-Jun-16
2013	Noise Induced Hearing Loss in Various Occupations / Environments in Trinidad and Tobago	Dr. Ricardo Clarke/ Dr. Nikolay Zyukiov	\$330,000	Scheduled End Date 4-Jun-16
2013	Mitigating the Dementia Tsunami in Trinidad and Tobago	Dr. Gershwin Davis/ Dr. Nelleen Baboolal	\$550,000	Completed
2013	An investigation into the Trajectory of Neurobehavioural Development of Primary School Children in Trinidad and Tobago	Dr. Farid Youssef	\$464,000	Scheduled End Date 21-Nov-16
2013	A New Volcanic Emissions Monitoring Network: Integrating Community Engagement and Public Health Hazard Management through the application and transfer of low-cost technology	Dr. Erouscilla Joseph	\$298,610	Completed
2015	Pharmacovigilance Programme for Assuring Medication Safety in Trinidadian Population	Dr. Sameer Dhingra	\$198,000	Scheduled End Date 30-Apr-18
			\$3,990,610	
Technology & Society: Enhancing Efficiency, Competitiveness & Social and Cultural well-being				
2012	Documentation and Digital Development of Heritage Languages in Trinidad and Tobago	Benjamin Braithwaite	\$249,768	Completed
2012	AgriNett, An Agriculture Knowledge ePortal: Research on Intelligent Decision Support for enhancing Crop and Livestock Enterprise Management	Margaret Bernard	\$800,000	Completed
2013	Capacity Building and Research on Smart Grid Technology in the Caribbean Region	Dr. Davinder Sharma	\$500,000	Scheduled End Date 22-May-16
2015	Work/Life Balance; Its Impact on the Productivity of Working Men and Women and on the Wellbeing of Ageing Populations in Trinidad	Prof. Patricia Mohammed	\$300,000	Scheduled End Date 30-Apr-18
2015	Development of advanced precision agriculture techniques for crop management and risk assessment in Trinidad and Tobago	Dr Govind Seepersad	\$400,000	Scheduled End Date 30-Apr-18
			\$2,249,768	

“Sa mwen vlé di ou, twavay-la ou ka fè pou instwui moun an Patwa épi ékwi Patwa sé yon bon bagay ou ka fè - mwen twouvé sa yon bon bagay. I bon pou péyi-a, i bon pou Trinidad; i bon pou tout sé timay-la, pas si yo ka palé langaj-la, otjenn koté yo alé, yo sa palé langaj-la (Matnik, Gwadeloup, Domnik, Sent Lisi, Bénézwél). Sé moun-la an Paramin, yo ka palé bon kont-ou. Épi nou apwézan, nou ké sipòté tout sa zòt ka fè, pas si zòt pa fè sa, nou ké pèdi langaj-la. Nou pa vlé pèdi langaj-la. Anpil moun ni laj-mwen kon sa (sèptant senk, 75, lanée), yo ka palé Patwa toujou. Mwen twouvé sa on bon bagay yo ka fè - pou tout sé jenn jénéwasyon apwwann langaj-la, sa bon. Langaj-la ké wésisité épi nou ké édé. Tout sé vilay-la ki ka palé langaj-la kon isit- Sangri Grand ni Patwa, Awim ni Patwa, Blanchichay ni Patwa, Santa Cruz ni anpil Patwa, mé si pèsonn pa wèsté épi instwui lonalòt, nou ké pèdi langaj-la an tan pou vini. Ou ka fè on kéchoy bon pou vilay-la épi langaj-la, épi nou kontan sa ou fè.”



“What I would like to tell you is that the work you are doing to teach people Patois and write Patois is a good thing. It is good for the country, good for Trinidad; it is good for the children, because if they learn the language, they can use the language anywhere they go (Martinique, Guadeloupe, Dominica, St Lucia, Venezuela). The people of Paramin are saying good things about you. We support what you are doing, because if you don’t do it, we will lose the language. We don’t want to lose it. There are a lot of people my age (75) who still speak Patois. I appreciate what you are doing so the young generation can learn - it is a good thing. The language will be revived, and we will help. There are all those villages that speak Patois like we do here - Sangre Grande has Patois, Arima has Patois, Blanchisseuse has Patois, Santa Cruz has a lot of Patois, but if there is no one left to teach others, we will lose the language in time to come. You are doing a good thing for the village and the language, and we are happy with what you are doing.”

Mr. Augustus Sucre, 75 years old, Maraval



CONNECTING WITH OUR STAKEHOLDERS

- BUILDING PARTNERSHIPS AND FOSTERING COLLABORATION

The RDI Fund is a novel research funding instrument which focuses not only on research but also on catalyzing development impact. This necessitates new approaches to the conduct of academic research as it takes the academic out of the silo and into the community. It also requires project teams to be creative, proactive and aggressive in disseminating information on the results of their projects and the value of the specific research activities undertaken.

The goal of the Fund is to encourage more multidisciplinary research as well as more collaborations with external partners spanning academia, civil society, private and public sectors, and development agencies, locally, regionally and internationally. Breaking down these silos will help researchers and development partners to capitalize on synergies and increase the effectiveness of their development efforts.

Project teams are encouraged to engage stakeholders at all stages of the project, including design and evaluation, by embracing measures which facilitate a two-way flow of communication throughout the project cycle. This approach helps to ensure that stakeholders' needs are incorporated, that they are able to benefit from the project, and that their feedback is taken into consideration in determining project success.

This approach also ensures that the new knowledge generated from research activities are presented to the relevant audience and creative means are utilized to ensure knowledge mobilization and uptake. Project teams are thus incentivized to be more receptive and flexible in designing research methodologies and adopting project objectives that are responsive to the particular development needs of their respective stakeholder communities.

“The Web Optimization for International Trade workshop hosted by the Language and Competitiveness project was an excellent opportunity for all fifteen (15) Exporters present representative of the following sectors: Food and Beverage, Jewellery, Fashion, Health, Household Chemicals, Industrial Goods and Personal Care Products. This was substantiated by responses received in their feedback forms and conversations with participants at the end of the session. There is now a need for exporTT to work with companies to ensure that they follow through on customized action plans developed and that their websites are indeed optimized for Export Growth. Beyond this programme, exporTT is moving to deepen its relationship with UWI and the Center for Language Learning as we seek to increase the international competitiveness of our Exporters.”

Mr. Adrian Theodore, CEO exporTT



Post Graduate Training and Knowledge Transfer



More than **118** graduate students have already benefitted from training and research experience as part of RDI Fund project teams.

Academic Outputs



Collectively, more than **78** conference presentations, **26** Theses and **23** peer reviewed publications have been produced thus far.



Stakeholder Engagement and Knowledge Mobilization

Stakeholder consultations and training workshops and/or conferences to share key findings are ongoing with most of the projects, with more than **57** events hosted to date.

Partnerships and Collaborations



RDI Fund projects have led to new/strengthened collaborations with more than **153** local, regional and international partners. Some of these have led to formal MOUs with The University of the West Indies, St Augustine Campus. These institutions include tertiary education institutions, government agencies, development agencies, private sector and non-governmental organizations and civil society groups, among others.



Community Outreach

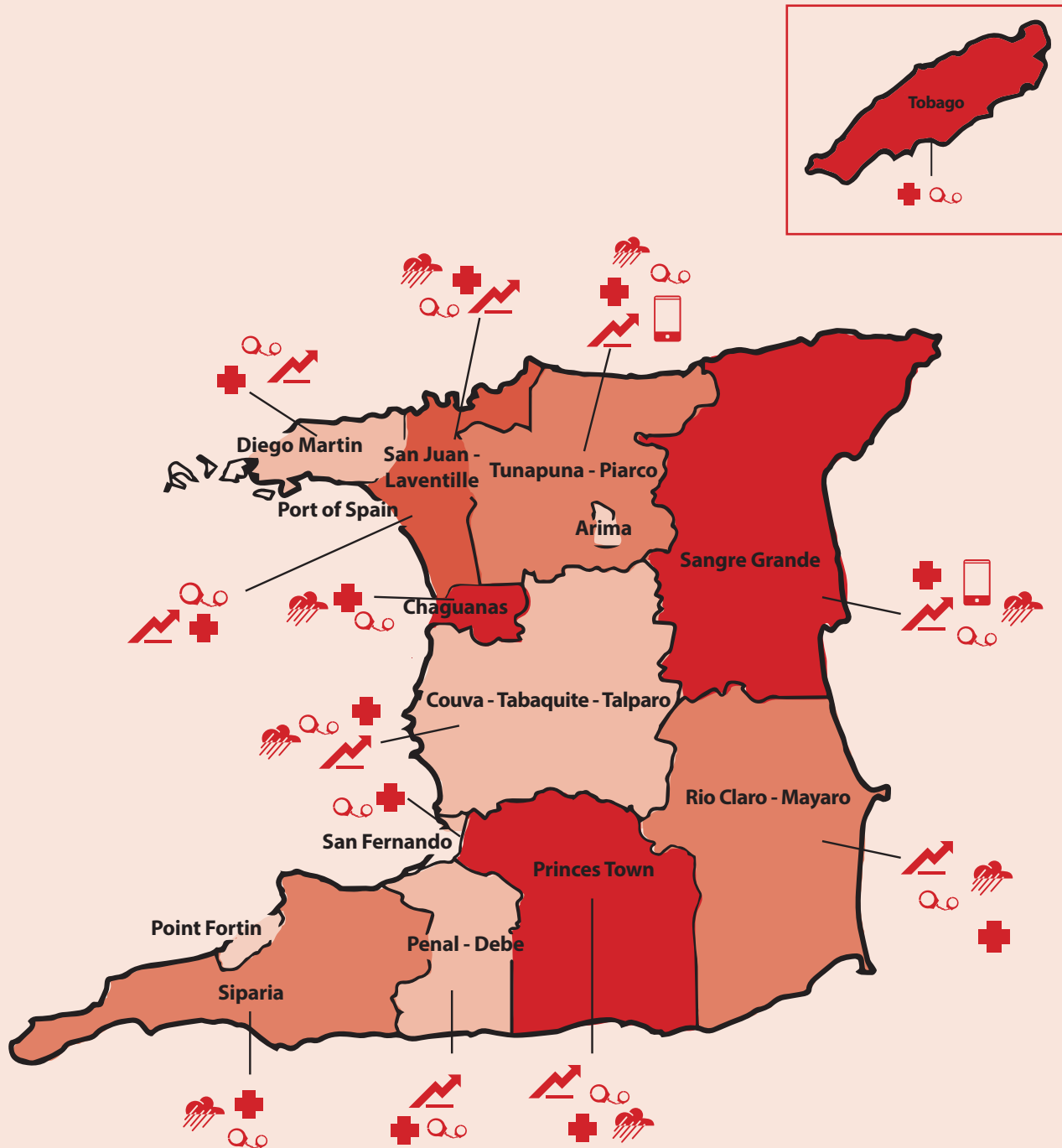
RDI Fund projects have conducted activities in more than **200** communities throughout T&T. These activities include music therapy interventions, farmer training, a wide range of environmental and public health sampling, neurobehavioural testing, flood risk assessments, prison interventions, language documentation, and population surveys. Projects have also garnered more than **60** print media mentions to date. Project teams currently have **16** project websites and **11** social media profiles/pages.



External Funding

Most notably, these projects have been able to attract more than **TT\$30 million** in counterpart funding and in-kind contributions from various local, regional and international funding partners. Additionally, project teams have been able to leverage their project experiences and successes to attract external funding for new projects, totaling more than **TT\$5 million** to date.

Map of Trinidad and Tobago Showing Project Activity Locations



Climate Change
and
Environmental
Issues



Crime,
Violence
and
Citizen Security



Economic
Diversification and
Sector Competitiveness



Finance
and
Entrepreneurship



Public
Health



Technology and
Society: Enhancing
Competitiveness, Social
and Cultural Well-being



Project Partnerships

The Government of the Republic of Trinidad and Tobago (GORTT), the Water and Sewerage Authority (WASA), the Water Resources Agency (WRA), the Trinidad and Tobago Solid Waste Management Company (SWMCOL), the Caribbean Institute of Meteorology and Hydrology (CIMH), Guanapo Community and Environmental Development Organisation (GCEDO), University of Hamburg (Germany), City University of New York (USA), Stanford University (USA), Mars (USA and Europe), United States Department of Agriculture, the World Cocoa Foundation, The Brazilian Agricultural Research Corporation (EMPRAPA), University of Texas Medical Branch (USA), University of Stanford (USA), Kings College (UK), United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), Swansea University (UK), the J. Craig Venter Institute (USA), the Center for Disease Control and Prevention (USA), Citizens for Conservation, the Organization of American States (OAS), the Trinidad and Tobago Chamber of Industry and Commerce, Families in Action, Trinidad and Tobago Unified Teachers Association, The Ministry of Education, The Ministry of Finance, The Ministry of National Security, the Ministry of Food Production, The Ministry of Health, The Ministry of Energy and Energy Affairs, the Ministry of Foreign Affairs, the Trinidad and Tobago Manufacturers Association (TTMA), the Embassy of the People's Republic of China, the Urban Development Company of Trinidad and Tobago (UDECOTT), the Livestock and Livestock Products Board, the Poultry Association of Trinidad and Tobago, the Trinidad Layers Association, the Poultry Surveillance Unit, the Animal Health Veterinary Laboratory Agency (UK), the Point-a-Pierre Wild Fowl Trust, Trinidad and Tobago Electricity Commission (T&TEC), Power Generation Company of Trinidad and Tobago (POWERGEN), the Telecommunications Authority of Trinidad and Tobago, Nvidia Corporation (USA), the Trinidad and Tobago Police Service, Soufriere Regional Development Foundation (Saint Lucia), National Emergency Management Organisation (Saint Lucia), Montserrat Volcano Observatory (MVO), Women's Institute for Alternative Development (WINAD), National Institute of Higher Education, Research, Science and Technology (NIHERST), Office of Disaster Preparedness and Management, National Infrastructure Development Company (NIDCO), Trinidad and Tobago Network Information Centre, the Central Statistical Office (CSO), the Environmental Management Authority (EMA), The National Parent Teacher Association, CIRAD, LGC Genomics (Germany), Mondelez, Lindt, Brasso Seco Cocoa Farmers, Partners in Cocoa Conservation, Montserrat Cocoa Farmers Cooperative Society Limited, Caribbean Fine Cocoa Forum, Cocoa Industry Board, Newer Worlds, UK, Savannah State University, The Ministry of Environment, Hunters Associations, The Ministry of Planning and Sustainable Development, IMA, Buccoo Reef Trust, Trinidad and Tobago Prison Service, University of Birmingham, NAMDEVCO, ADB, Green Market, Bmobile, World Bank, CTA, Met Office, EWMSC, TPHL, SFGH, Blood Systems Research Institute, San Francisco, CARPHA, Katholieke Universiteit Leuven, University of Southampton, Caribbean Epidemiology Centre (CAREC), California Academy of Sciences, SWRHA, NCRHA, Land Resettlement Agency (LRA), THA, The Trinidad Layers Association, Field Naturalist Society, US Embassy, Deaf Empowerment and Advancement Foundation (DEAF), Alliance Francaise, Women Working for Social Progress, Venezuelan Embassy, Lloyd Best Institute of the West Indies, The Caribbean Sign Language Centre, Local Government Authorities, Phoenix Park Gas Processors Limited, Sacha Cosmetics, TYE Manufacturing, Coco Reef Resort and Spa, Trinidad and Tobago Hospitality Institute, Tunapuna Piarco Regional Corporation, Regulated Industries Commission, IEEE, BGTT, MTEST, Bureau of Standards of Trinidad and Tobago, Coastal Protection Unit (CPU), Lands and Surveys Division, National Energy Corporation, California State University, Fresno State University, International Labour Organization (ILO), United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Cipriani College of Labour and Co-operative Studies, Trinidad and Tobago Association for Responsible People (TTARP), WINAD, Repsol, farmers associations in Maracas St. Joseph and Orange Grove, Farmers Associations, USDA, CARDI, IICA, FAO, CABI, RHAs, POSGH, EWMSC, Mt. Hope Women's Hospital, Arima District Health Facility, SFGH, Couva Health Facility, SuperPharm, Massy Store Pharmacies, WHO-UMC (Uppsala Monitoring Centre), Turtle Village Trust, Bare Fruit Ltd, Todds Road Citrus Farmers Association, University of Florida (Gainesville), IDB, EPOS Council of Community Organizations, EPOS Development Company, Columbia University, Canadian Institute of Planners (CIP), University of Central Florida, University of Nis, St. Ann's Mental Hospital, Citizen Security Programme, Trinidad and Tobago Alzheimer's Association, ExportTT, British Caribbean Chamber of Commerce, Trinidad & Tobago Chamber of Industry & Commerce (TTCIC), Trinidad and Tobago Coalition of Service Industries.

“The project implementation unit of the Citizen Security Programme (CSP) in Tobago was pleased to be associated with this research project as it is clearly aligned with our core objective of promoting a culture of peace and lawfulness. In this regard it provided a core perspective of the views of various sectors and their perceptions of safety. For us, having had an initial view of safety, this exercise was a good measure of work done. It also clarified some misconceptions and will aid in a more appropriate selection of at risk sectors and key issues to be addressed. In my view the information gathered from the research will serve us well in treating with our core objective. Well done.”

Ms. Ann Marie deGazon, Community Action Officer (Tobago), Citizen Security Programme
Fear of Crime Project

“Researching Trinidad and Tobago Sign Language is important because it is indigenous to our country. It’s different from American Sign Language. It reflects our history. This work is helping to revitalize our language and make sure that it doesn’t die. When I was working to interpret the Budget last year, I used TTSL signs to make sure that older Deaf people in the country could understand clearly.”

**Mr. Ian Dhanoolal - Deaf community leader,
teacher, and interpreter**
Endangered Languages Project

“I think the project has brought some exposure to some of the beauty and people of the community. Even though there is more to see and capture, at least all areas were touched on such as historical sites, culture and spirituality to name a few.”

Ms. Cynthia Milan an
EPOS community representative
Built and Cultural Heritage Project

Information Dissemination and Knowledge Mobilization

Media is also playing a critical role in the knowledge transfer process and projects have been proactive in this area. Reports on project activities are regularly publicized in traditional print media, and project teams have also been utilizing TV and radio to disseminate

their work. Projects are also embracing digital media, with most RDI Fund projects having a project website as well as a social media presence on several platforms including Facebook, Tumblr, YouTube, Twitter and Flickr.

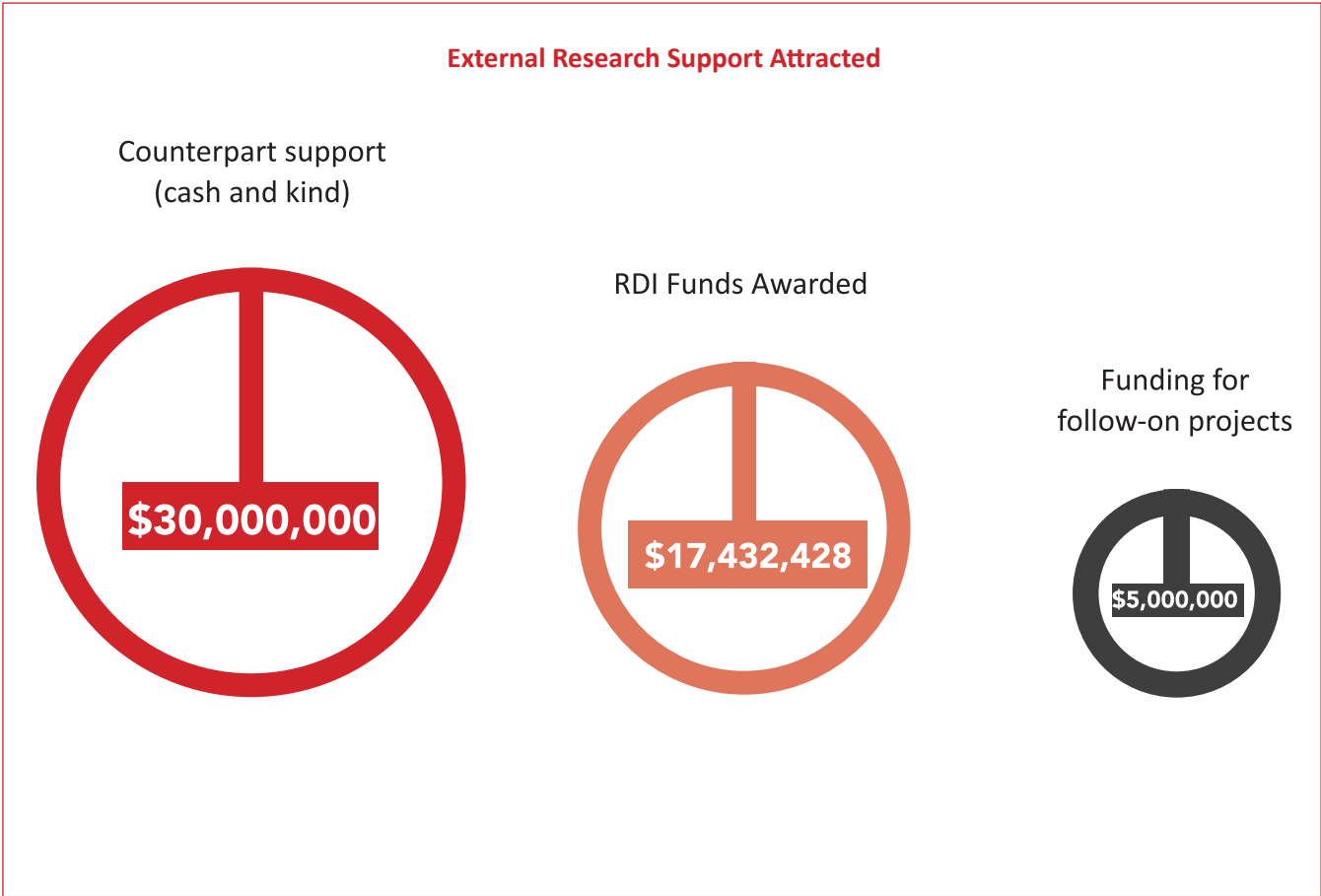
Websites and Social Media presence



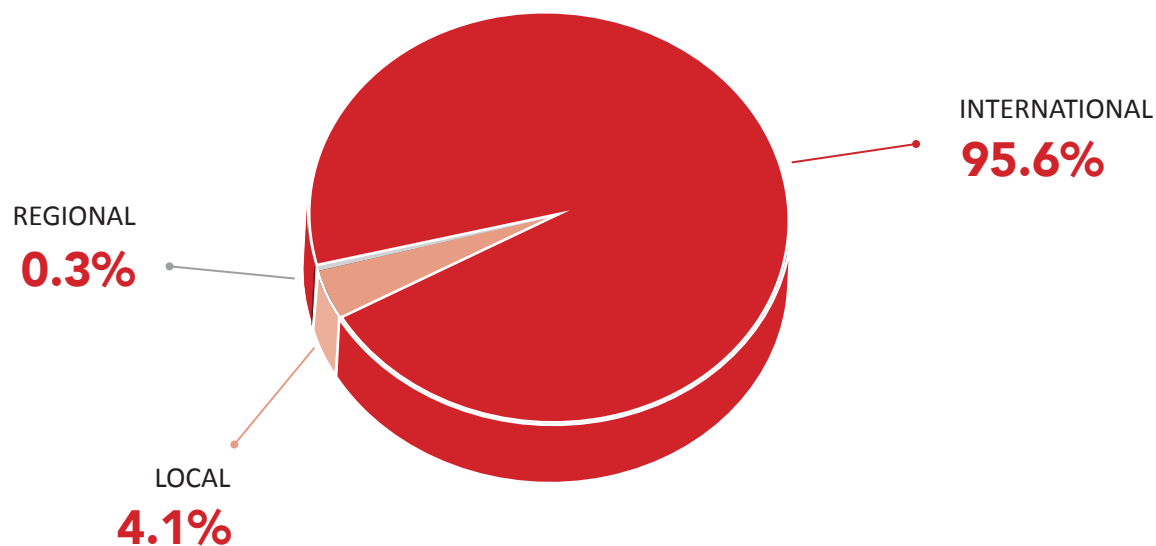
Counterpart Funding

The Fund is structured to encourage stakeholder engagement and collaborative partnerships. This is an integral part of the project design and has proven to be an imperative innovation in the grant funding model. This has also led to **an exponential increase in the counterpart support attracted by the funded projects as well as a significant increase in the number of new partnerships established locally, regionally and internationally.** In fact, while the Fund has granted TT\$17.4 million to the projects in its portfolio, these projects have been able to attract more than double that amount in counterpart support, both in cash and

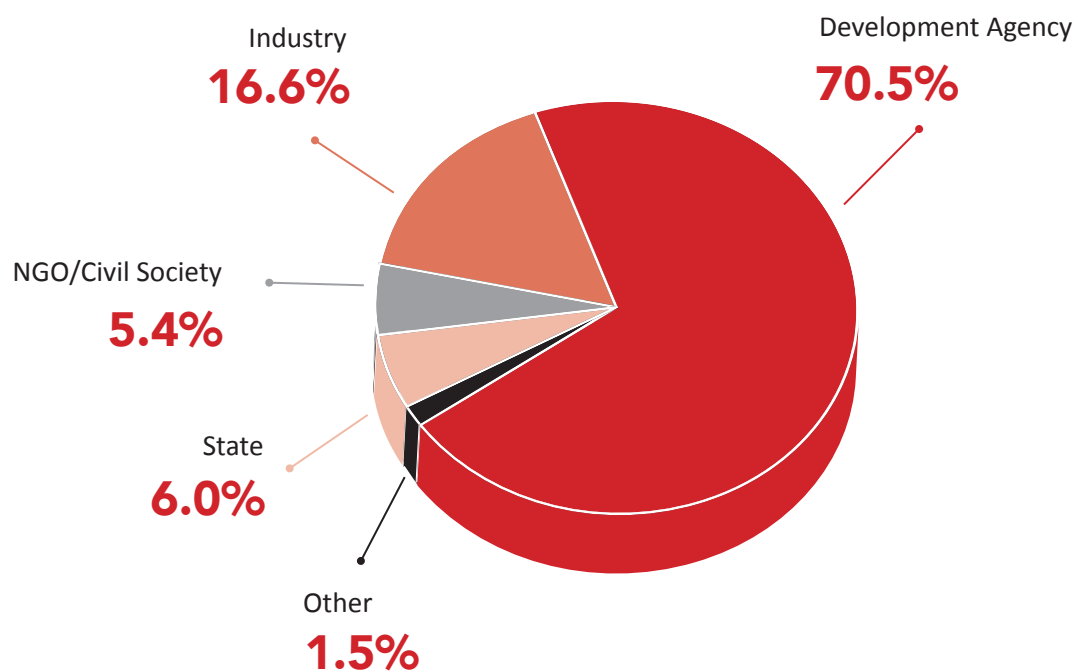
in kind, from collaborators and partners external to The UWI, as well as in additional grant funding for new projects, most of them related, follow-ons or scale ups on research activities conducted as part of their RDI Fund projects. These follow-on projects have received more than \$5 million in grant funding to date. **The Fund has thus emerged as an excellent seed funding model for research and development,** bringing together the capacity and resources of academia, government, private sector, development agencies and civil society to work on pressing development issues and thus multiplying the impact of their collective efforts.



Funding Source (Geographic location)



Funding Source (Sector)



“This project has been of great benefit to SWMCOL so I wish to express my most sincere appreciation for the research undertaken. It has certainly been the trigger which has spurred us into action to remedy the adverse impact which our operations are having on the environment. I am confident that we will collaborate further with UWI on similar or related exercises and expand the scope to include other areas of our company’s operations. I look forward to the deepening of the relationship between our organisations in the future.”

Mr. Sharma Lalla, CEO, SWMCOL





FROM ACTIVITIES TO IMPACT

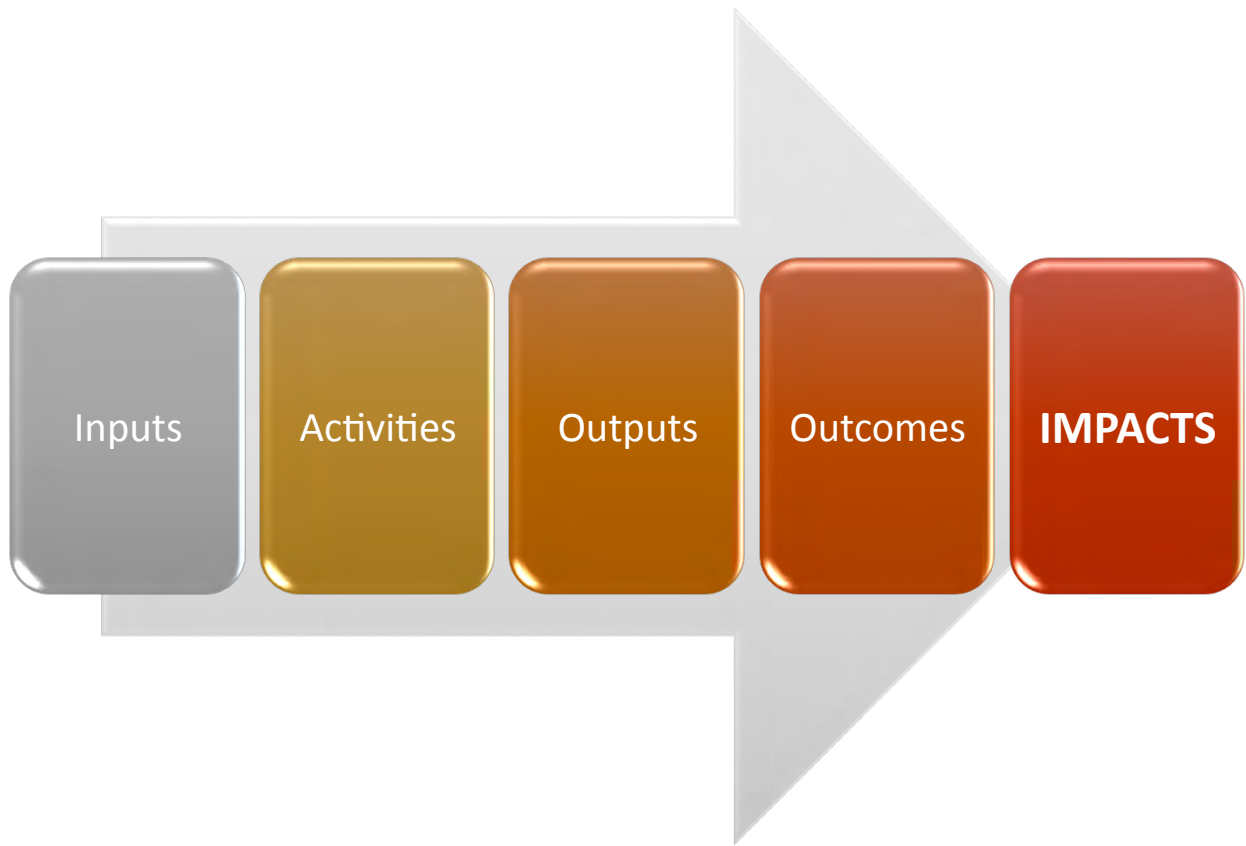
- MAPPING THE LINKAGES

Research and development impact are central to the work of the RDI Fund. Capturing information related to outcomes and impacts of the various projects funded, beyond the scope of typical outputs of academic research projects such as publications, scholarly articles, and teaching/research materials, is essential for ensuring that the Fund is achieving its mandate. Impact can be defined as the evident academic,

technological, economic, cultural, health, environmental, societal, policy, organizational, teaching/training and reputational benefits to specific groups in society emanating from research activity. RDI Fund projects are expected to demonstrate academic as well as non - academic impacts in the short to medium term (three to five years). Examples of specific impacts include:

New or improved product(s), processes and/or service(s)	The use of a project's output by a commercial or industrial enterprise or other stakeholder group	The award of a patent	A resultant change in public sector policy	The solution of a problem of economic, social, political or cultural significance
Generation of new knowledge for research	Strengthening communities of practice	Assisting a stakeholder community to become more organized and engaged	A recognized contribution to intellectual discourse	Attracting additional external funding to support a cause

Pathway to Impact



Project teams engaged in RDI Fund projects are encouraged to be proactive, envisioning and strategizing for impact from the inception of the project rather than waiting until the completion of the project's research activities. This strategic approach involves the identification of a 'pathway to impact' leading from research activities, to outputs, to outcomes, to impacts and includes thinking about how to measure the impact of their efforts.

The following Impact Briefs seek to capture the impact highlights from sixteen projects that have submitted completion reports to date. These briefs are not an exhaustive representation of all project outputs, outcomes and impacts thus far and do not include anticipated impacts which are sure to accrue in the future.



Evaluation of the Economic Value of Caroni Swamp: Implications of Climate Change Using the UNEP TEEB Protocol



Project Lead: Professor John Agard

Thematic Area: Climate Change and Environmental Issues

RDI Fund Grant: \$954,854

Project Duration: 36 months

Website: <http://caroniswamprdi.org/>

Contact: caroniswamp.rdi@sta.uwi.edu

Impact Category: Policy, Environmental, Economic

Project Objective

To perform an economic evaluation of Caroni Swamp using the Total Economic Valuation (TEV) system adopted in the UNEP's "The Economics of Ecosystems and Biodiversity" (TEEB) global initiative.

Impact Highlights

This project has allowed stakeholders and high-level policy makers to access capacity building support in the area of economic valuation of ecosystem services and the implications for policy and decision making.

As a result of the work done on the project and the engagement with key stakeholders, the GORTT was approached by UNEP to be involved in a GEF funded project to incorporate valuation of ecosystems in the National Accounts.

Findings from this project also resulted in **the commissioning of the project team to design the methodology and analyze the data collected for a National Wildlife Survey**, the first in the region. To date,

90 people from CBOs, NGOs, conservation groups and hunters have been trained in the field methodological techniques used in conducting the national wildlife survey.

The project's activities have resulted in the identification of new species in the Caroni Swamp. It has also helped in the identification of the uses of the swamp and the specific locations therein for extraction of goods and services by various stakeholders including crab catchers, vendors, poachers, tour boat operators and recreational users. **The project's research activities have resulted in several key findings which will provide data for sound policy development in biodiversity and natural resource management.** One such finding will impact on the areas in the swamp designated as protected areas as it was found that some areas which may need to be considered for protection currently lie outside of the existing boundaries.

The project's activities have led to a larger project looking at the impacts of climate change and sea level rise on various aspects of the Caroni Swamp (GoLoCarSce Project) which has received €500,000 in grant funding from the ACP Caribbean and Pacific Research Programme for Sustainable Development.

The Impact of the Contaminants Produced by the Guanapo Landfill on the Surrounding Environment

Project Lead: Dr. Denise Beckles

Thematic Area: Climate Change and Environmental Issues

RDI Fund Grant: \$1,000,000

Project Duration: 33 months

Website: N/A

Contact: denise.beckles@sta.uwi.edu

Impact Category: Policy, Environmental, Health, Teaching/ Training



amount of waste entering the landfill, and change in the type of waste entering the landfill.

The report has also been used to **provide information to the Land Settlement Agency (LSA)** to assist in evaluating its relocation efforts of residents currently residing at the landfill.

The project team also provided technical support to the Water and Sewerage Authority of Trinidad and Tobago (WASA) and the Guanapo Community and Environmental Development Organisation (GCEDO) as part of the CBOs participation in WASA's Adopt-a River Programme, which started with the Guanapo watershed.

Encouraged by the experiences and partnerships cultivated during the implementation of this project, The Department of Chemistry at UWI St Augustine has created a new major in applied/industrial chemistry which has a research internship component. Partners on this project, SWMCOL and Water Resources Agency (WRA), have both agreed to host interns when the 1st cohort starts in June-August 2016.

Insights gained from this project helped to spawn another collaborative project with GCEDO, "Science Education as a Climate Change Resilience Strategy", funded by UNDP-GEF and other donors to the tune of US \$94,013. This project will see the establishment of green technologies in the Guanapo community, with an emphasis on aquaponics.

Project Objective

To assess the extent of environmental contamination from the Guanapo Landfill and its impact to ecological and human receptors.

Impact Highlights

This project produced a comprehensive report on the chemical, hydrological and environmental aspects of the landfill, inclusive of recommendations for mitigation. **The report has since been used to inform policy at the Trinidad and Tobago Solid Waste Management Company (SWMCOL) and has** contracted a consultant to assist in planning for a leachate treatment system at the landfill. The project data has and will continue to play an important role in the design of the system.

Some of the project team's recommendations for improvement in the environmental impact of the landfill have already been implemented by SWMCOL. These include waste diversion strategies, limiting the

Analysis of Intervention and Counselling for At Risk Youth to Reduce Crime, Violence and to Improve Outcomes for the Individual, The Schools, and the Family

Project Lead: Dr. Sandra Celestine

Thematic Area: Crime, Violence & Citizen Security

RDI Fund Grant: \$500,000

Project Duration: 12 months

Website: <http://www.atriskyouthtt.com/>
(now defunct)

Contact: sandra.celestine@sta.uwi.edu

Impact Category: Societal, Policy



The project's early results were quite encouraging, with **40% of students who participated in the intervention reporting improved behavior. The team was also able to identify specific issues causing a student to misbehave in over 95% of the cohort involved in the intervention.** Initial data clearly shows that in order to eradicate student misbehaviour and school violence, successful interventions must include counselling for both the child at risk, as well as their family. The team also found that peer counselling produced faster results than individual counselling.

This project garnered strong and active support from numerous stakeholders. Collaborators on this project included the Ministry of Education, the Trinidad and Tobago Chamber of Commerce, Families in Action, the Ministry of National Security, the Ministry of National Diversity and Social Integration, the National Parent Teacher Association, the Trinidad and Tobago Unified Teacher's Association, the United Nations Development Programme, BP Trinidad and Tobago and Republic Bank Limited. **In April 2013, the Ministry of Education announced that the cabinet of the GORTT had taken a decision to commit \$90.7 million over three years to hire 500 specialist staff, inclusive of clinical psychologists and social workers, to address behavioural issues among schoolchildren.**

Project Objective

To derive empirical data of successful counseling therapies for at risk secondary school students.

Impact Highlights

The Youth At Risk project sought to test the use of a multi-modal approach to therapeutic counseling to address youth misbehaviour and school crime and violence. The project team found that there is a strong relationship between community violence, community trauma and increased high risk behaviour in children. By targeting at risk students in hot spot communities and using a mix of individual, family and peer group counselling, the project demonstrated a successful short term intervention method which brought about positive change in the youth and their families. The incorporation of music therapy in the interventions proved to be very successful and insightful.

A Multi-centre Phase 3 Cluster Randomized Controlled Trial of a Manualized Anger Management Intervention for Prisoners at Risk for Uncontrolled Anger and Aggression

Project Lead: Professor Gerard Hutchinson
Thematic Area: Crime, Violence & Citizen Security
RDI Fund Grant: \$999,396
Project Duration: 36 months
Website: N/A
Contact: gerard.hutchinson@sta.uwi.edu
Impact Category: Societal, Teaching/ Training, Health, Organizational, Policy



Project Objective

To reduce public fear of crimes against the person and public fear of violent victimization against the person in Trinidad and Tobago.

Impact Highlights

The Anger Management project sought to reduce in-prison aggression among prisoners and prison officers so as to improve prisoner and staff safety, increase prisoners' quality of life and improve prison officers' working conditions. Due to the research activities of this project, **ninety eight inmates and twenty prison officers benefitted from psychological and psychiatric screening. Twelve prison officers (three from each correctional facility) were also trained as lay therapists** to identify prisoners at risk for psychiatric/psychological disorders and make recommendations for treatment.

As a result of the screenings carried out, **sixty eight inmates from four correctional facilities were selected for further evaluation and anger management training** to develop coping strategies for dealing with their anger. **Twenty two prison officers also received this training. Comparison of prisoners' pre- and post-training anger control demonstrated a 20% increase in their ability to control their anger and a 10% reduction in their impulsive expression of anger, changes which persisted 6 months post intervention.** These positive results suggest that cognitive anger management approaches are in fact applicable and effective in the local context. Feedback from prison officers was highly favourable as the officers interviewed felt that all prison officers and inmates should be exposed to the training. Given the success of this project's intervention, there is potential value in implementing this type of intervention on a more expanded scale, not just at the nation's prisons but also in the nation's schools and possibly other branches of national security, particularly those that are public-facing. Even members of the Judiciary have taken note of this anger management intervention and at least 1 person has been sentenced to participation in the anger management programme.

Crime Victimization and Fear of Crime Survey in Trinidad and Tobago

Project Lead: Professor Derek Chadee

Thematic Area: Crime, Violence & Citizen Security

RDI Fund Grant: \$549,600

Project Duration: 25 ½ months

Website: N/A

Contact: derek.chadee@sta.uwi.edu

Impact Category: Societal, Organizational, Policy, Technological

Project Objective

To undertake a survey on crime victimization and fear of crime in Trinidad and Tobago to understand the dynamics of victimization and responses to and strategies in dealing with victimization.

Impact Highlights

Professor Derek Chadee and his team completed **the first nationwide crime and victimization survey** which provided much needed data on crime victimization, an estimation of the 'dark figure' of crime and an in-depth assessment of fear of crime levels in Trinidad and Tobago. The Trinidad and Tobago Police Service (TTPS), recognizing the value of this project from inception, came on board very early with more than a half million TT dollars in counterpart support. The TTPS has also expressed an interest in conducting a national crime victimization survey biennially.



The findings and recommendations are already being used by the TTPS to inform their strategic planning to reduce crime nationwide. Key insights from this project also contributed to the development of interventions and policies to reduce crime victimization and fear of crime by several key stakeholders, including government ministries, non-governmental organizations, community-based organizations, various branches of national security, and the business community. By providing much needed primary data and establishing a baseline for crime victimization in Trinidad and Tobago, this project is helping to strengthen national crime policies by facilitating evidence-based policy making and improving stakeholders' understanding of local crime victimization and fear of crime.

This project also pioneered the use of digital data collection technology in this field in the country which has implications for the way surveys are administered for social science research in the future. The methods employed helped to increase efficiency, improve survey instrument administration and reduce interviewer error.

A Matter of Survival: A life course approach to Understanding the Decision- making and Economic Livelihoods of School Dropouts

Project Lead: Dr. Priya Kissoon

Thematic Area: Crime, Violence & Citizen Security

RDI Fund Grant: \$500,000

Project Duration: 31 months

Website: N/A

Contact: priya.kissoon@sta.uwi.edu

Impact Category: Societal, Policy, Teaching/Training



Project Objective

To investigate the life-course trajectories and complex decision-making of school dropouts in Trinidad & Tobago in order to analyze their economic productivity and suggest interventions that can improve their income-generating capabilities.

Impact Highlights

This project **surveyed 1200 persons in over 150 communities across the country, the most extensive study of its kind conducted locally.** The data compiled provided key insights with applicability in the delivery of services for dropouts as well as changes that can be made to the primary and secondary school curriculum to reduce the number of dropouts. Stakeholders have already taken note of these insights and are using them to inform recommendations in several areas, including vocational training, sex education, male underachievement, challenges associated with race and class privilege in the education system, and supporting education of young people whose access is

challenged by pregnancy or caring for family members. These stakeholders included various government ministries, NGOs and private sector organizations.

The project successfully mapped resources with a mandate to assist school dropouts and identified gaps in those resources, both in content and geographic availability. This tool helps to highlight opportunities for improving the delivery of services intended for dropouts, particularly as it relates to continuing education and skills training, ensuring that there is alignment between geographic location of drop outs and the location of services for that population.

One output of the project is **a documentary film which details the experiences of some of the dropouts interviewed during the course of the project.** The film seeks to destigmatize the dropout while emphasizing the importance of education and skills to labour-market adaptation. This will help to sensitize the public at large but will also serve as virtual mentorship for the in-school population who can benefit from the hindsight of adult dropouts.

During the course of this project, **a cadre of 160 community based researchers were trained** in the administration of survey instruments and interviews for research purposes.

Understanding Built and Cultural Heritage in East Port-of-Spain

Project Lead: Dr. Asad Mohammed

Thematic Area: Economic Diversification and Sector Competitiveness

RDI Fund Grant: \$800,000

Project Duration: 30 months

Website: <http://bluespacecaribbean.com/projects-main/rdifund-project/>

Contact: info@blueSpacecaribbean.com

Impact Category: Cultural, Economic

Project Objective

To facilitate the implementation of the GORTT Heritage City Growth Pole Initiative (HCGPI) in East Port of Spain by improving the understanding of the built and cultural heritage in the area in order to leverage these assets for economic development.

Impact Highlights

Dr Asad Mohammed's project on the Built and Cultural Heritage in East POS has resulted in a better understanding of the history of development in the area and an awareness of the activities currently ongoing with respect to finding ways to stimulate economic activity in the area. The action research project helped



to strengthen community planning through capacity building and institutional strengthening demonstrated in the community's negotiations for the Fort Picton Restoration Project.

The project team has also created maps detailing the built and cultural heritage of Belmont, Piccadilly and Picton which are being structured in GIS format for easy accessibility by other researchers and policy makers. Based on the spatial data collected and the engagement of community stakeholders, the project team was able to **develop an innovation model to be used to leverage the built and cultural heritage assets of EPOS into wealth creation, business start-ups and sustainable livelihoods.**

As part of the research activities of the project, the documentary "City on the Hill" was produced. The documentary captures the built and cultural heritage of East Port of Spain and explores how the contributions made by this urban settlement may be harnessed for economic growth. It is quite noteworthy that this **documentary won the People's Choice award at the Trinidad and Tobago Film Festival 2015.**

Towards Re-development of a Competitive Citrus Industry in Trinidad and Tobago and the Greater CARICOM Area

Project Lead: Dr. Govind Seepersad

Thematic Area: Economic Diversification and Sector Competitiveness

RDI Fund Grant: \$600,000

Project Duration: 24 months

Website: <https://www.youtube.com/watch?v=ywLeBFRcvHM>

Contact: govind.seepersad@sta.uwi.edu

Impact Category: Teaching/ Training, Technological, Economic

Project Objective

To develop and implement a new model for the sustainable development of the Citrus Industry in Trinidad and Tobago.

Impact Highlights

Dr Govind Seepersad's project on citrus production is one of several projects funded by the RDI Fund which have demonstrated techniques or new findings which have implications for agro-economy and the diversification of our economy. This project demonstrated new technologies and research on new applications for citrus production, field layout, management and harvesting with a view to revitalizing



the industry by significantly increasing crop yield and lowering harvesting costs. This project's research activities led to **the establishment of an eight acre demonstration citrus orchard at the UWI South Campus**. Several farmers have already visited the field to observe the practices and the project team is currently working with the Tobago House of Assembly to establish a similar orchard in Tobago.

In addition, three citrus technology videos were developed and used for training as well as disseminated online. These videos looked at issues affecting the industry regionally and internationally, and trained viewers on grafting methods and new technologies to improve competitiveness and resilience to the greening diseases. **Two of these videos are currently being used for the preparation of CAPE students by the Ministry of Education.**

A citrus reference book which is being finalized will provide guidelines for the effective production, processing and marketing of citrus and citrus products. It also provides a roadmap for policy development, with recommendations and interventions for key segments of the citrus industry value chain.

Language Competitiveness: Positioning T&T for Social Development

Project Lead: Dr. Beverly-Anne Carter

Thematic Area: Economic Diversification and Sector Competitiveness

RDI Fund Grant: \$500,000

Project Duration: 30 months

Website: <http://sta.uwi.edu/rdifund/projects/languageandcompetitivenessstt/index.html>

Contact: Lang.Comp@sta.uwi.edu

Impact Category: Economic, Cultural, Organizational, Policy

Project Objective

To enhance country/sector competitiveness and foster sustainable economic development by promoting language and intercultural competence in trade and education.

Impact Highlights

This project sought to increase awareness of the multiplier economic benefits to be gained from capitalizing on intercultural competence and conversely the huge economic costs associated with not leveraging language competence to increase competitiveness. Following outreach activities, several local Small and Medium-sized Enterprises (SMEs) desirous of implementing language management strategies in their business were identified. To aid in this, in partnership with the National Export Facilitation Organization of Trinidad and Tobago (ExporTT), workshops were provided on website optimization for international trade. **These workshops raised awareness among**



SMEs about ways to enhance export marketing, helped local businesses to visualize how they can attract non-English speaking markets, introduced and strengthened the concept of localization as a marketing strategy in the SME sector, and sensitized employers to the value of language skills, encouraging them to rethink their recruitment and language management strategies.

Based on stakeholder feedback from private sector and trade organizations including the Trinidad and Tobago Manufacturers Association (TTMA) and the Caribbean Tourism Organization, a **DVD entitled “Quick Tips to Chinese Business Etiquette” was developed. At the request of the TTMA, the project team also conducted training in Chinese business etiquette for the organization’s members.**

The project’s activities highlighted the existence of multiple thriving non-English language communities which has serious implications for the delivery of services in the public and private sectors. **Interactive maps of Trinidad and Tobago illustrating estimates of the number and location of immigrants that speak a first language other than English were developed.** These insights were presented to policy makers at both the national and regional levels, to the Trinidad and Tobago Central Statistical Office (CSO) and the CARICOM Standing Committee on Statistics. Coming out of the work on this project **the CSO has endeavored to include a question on languages spoken at home other than English in future national census exercises.**

Leveraging the International Cocoa Gene Bank to Improve Competitiveness of the Cocoa Sector in the Caribbean, Using Modern Genomics

Project Lead: Professor Pathmanathan Umaharan
Thematic Area: Economic Diversification and Sector Competitiveness
RDI Fund Grant: \$1,500,000
Project Duration: 36 months
Website: <http://sta.uwi.edu/cru/GORTT.asp>
Contact: info@cocoacentre.com
Impact Category: Economic, Technological, Organizational, Reputational

Project Objective

To improve the productivity and quality of cocoa through the development of genetic markers and agronomic strategies to improve the competitiveness of the cocoa industry.

Impact Highlights

In 2012, the Cocoa Research Centre (CRC) proposed to leverage the genetic resources of the over 2200 varieties of cocoa held in the International Cocoa Genebank to transform the CRC into a world renowned research centre. The project is engineered to stimulate enquiry in the functional research groups of the Centre: Conservation, Genomics, Pathology, Quality, Agronomy, Form and Function and Value Addition. Since then, the project's research activities have attracted significant local, regional and international attention which has allowed this project to emerge as a star among the projects funded by the RDI Fund in terms of attracting counterpart funding to support the research mandate



of the CRC as well as proving its relevance to its stakeholders and potential beneficiaries.

Based on the early research successes of the project, the EU/ACP committed € 2.6 million to establish the International Fine Cocoa Innovation Centre. The Centre will seek to seed innovations along the entire cocoa value chain based on CRC's research output and international best practices. Through this Centre, the CRC will provide training on all aspects of the value chain, serve as a pilot demonstration facility for showcasing best practices and provide a range of technology and business services which will include traceability, certification, incubation and other technology services. This three year project commenced in March 2014.

The CRC was also able to leverage its early results on cadmium bioaccumulation to secure €500,000 in funding from ECA/CAOBISCO/FCC for a 5 year project on mitigation of cadmium in cocoa. The project started in June 2014, has already garnered interest throughout the Caribbean and Latin America, due to the implications of cadmium bioaccumulation in cocoa as a food safety issue and the potential effects it can have on cocoa exports from these regions to the lucrative European market.

The MARS chocolate company is also funding a joint cocoa genome sequencing project, where CRC/UWI has partnered with Stanford University in the US.

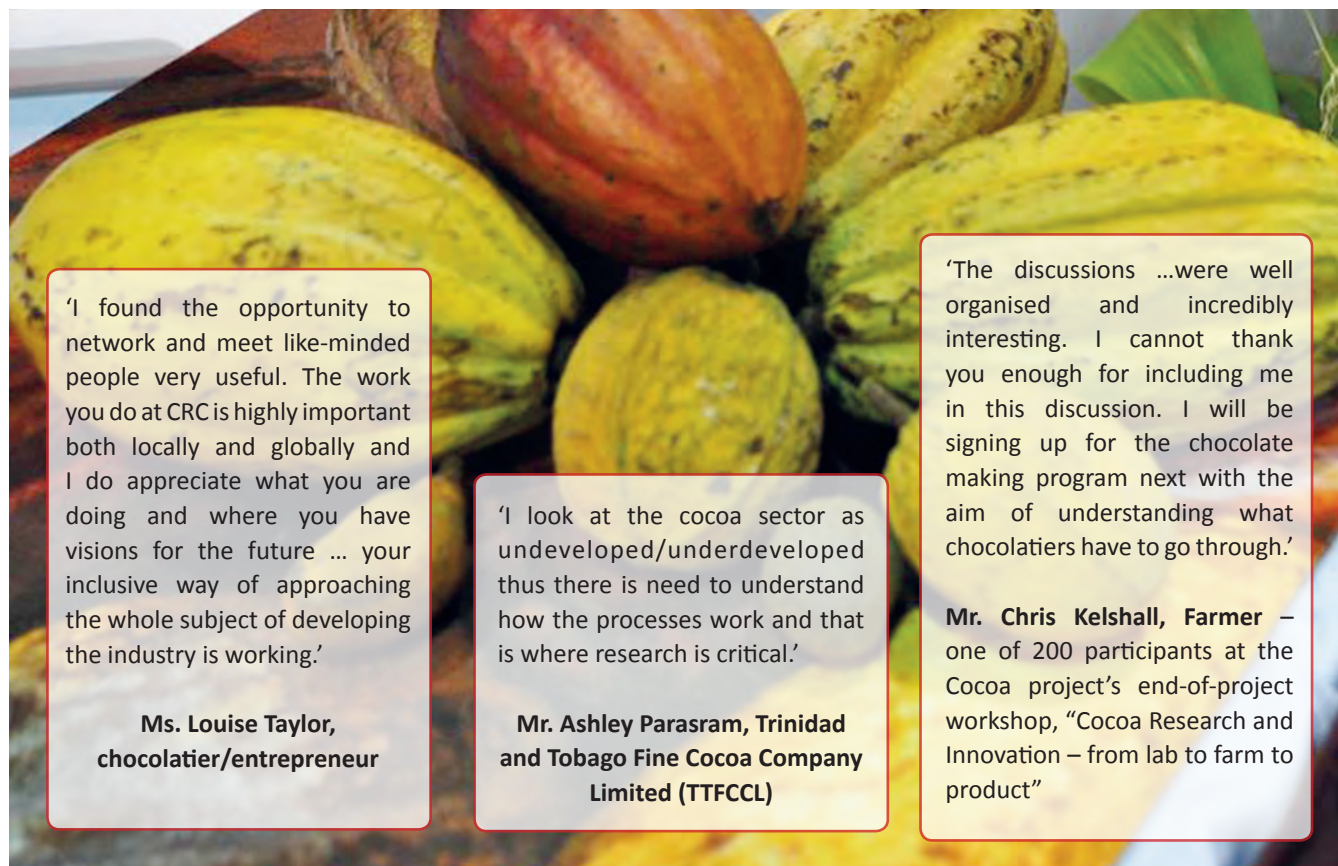
This project has received US\$200,000 in funding and, upon its completion, will position cocoa at the forefront of genomics with the most accumulated genomic information for any crop. The USDA has also provided US\$120,000 in funding to the CRC to conduct additional genomic studies to map genes for self-incompatibility, a trait that adversely affects cocoa yield.

Based on the fermentation research activities in the CRC's RDI Fund project, the CRC also launched a chocolate bar which has been widely acclaimed as a top bar. The bar has been rebranded in collaboration with Woodblock Chocolate based in the US and was launched in Oregon USA as a conservation bar, sold at US\$100 per bar. All proceeds from the sale of the Trinidad Fundare bar will contribute to the maintenance and sustainability of the International Cocoa Genebank's "living library" of cacao.

In addition to consultancies with local and regional

farmers, and providing training for farmers, chocolatiers and other key stakeholders along the value chain, the CRC is also now in a position to offer several other commercial services to local, regional and international clients including:

- A DNA fingerprinting service, already servicing clients in Jamaica, Haiti and Trinidad and negotiating with clients in Dominica and Nicaragua
- Molecular mining services for regional and international breeders
- A Blackpod disease screening service, already being provided to the Ministry of Agriculture and recent presentations in Ghana and at the Latin America and Caribbean Plant Breeders meeting may lead to international clients
- Witches' Broom disease screening service, the first training service provided to Nestle Ecuador in January 2016



'I found the opportunity to network and meet like-minded people very useful. The work you do at CRC is highly important both locally and globally and I do appreciate what you are doing and where you have visions for the future ... your inclusive way of approaching the whole subject of developing the industry is working.'

**Ms. Louise Taylor,
chocolatier/entrepreneur**

'I look at the cocoa sector as undeveloped/underdeveloped thus there is need to understand how the processes work and that is where research is critical.'

**Mr. Ashley Parasram, Trinidad
and Tobago Fine Cocoa Company
Limited (TTFCL)**

'The discussions ...were well organised and incredibly interesting. I cannot thank you enough for including me in this discussion. I will be signing up for the chocolate making program next with the aim of understanding what chocolatiers have to go through.'

Mr. Chris Kelshall, Farmer – one of 200 participants at the Cocoa project's end-of-project workshop, "Cocoa Research and Innovation – from lab to farm to product"

Use of Next Generation Molecular and Evolutionary Epidemiology to Strengthen Surveillance and Develop Models to Predict and Prevent the Spread of Dengue

Project Lead: Professor Christine Carrington

Thematic Area: Public Health

RDI Fund Grant: \$800,000

Project Duration: 36 months

Website: <http://sta.uwi.edu/rdifund/projects/ngsdengue/project.asp>

Contact: Christine.Carrington@sta.uwi.edu

Impact Category: Health, Policy, Technological

Project Objective

To facilitate improved dengue diagnostics and surveillance systems, and to develop models to predict and prevent the spread of dengue in T&T.

Impact Highlights

This project initially sought to develop a model for the spread of Dengue but expanded to include ChikV virus which was spreading through the region at that time. This demonstrates the type of responsiveness to stakeholder needs and pressing issues that the Fund is trying to encourage. The results of this study will also help the region plan for the impact of Zika.



Project activities were able to **determine the temporal and spatial distribution of Dengue and ChikV in T&T**. The team also developed a publicly accessible database including genomic, GIS, environmental, clinical and other data on dengue cases and provided recommendations for improving Dengue and ChikV diagnostics at healthcare institutions.

The project team used genomic techniques for molecular characterization of dengue and chikungunya virus infections in Trinidad and comparison of clinical and laboratory features with dengue and other acute febrile cases, leading to:

- confirmation of geographic origins,
- determination of rates of evolution and
- identification of clinical features that are suitable as a means of differentiating between those with ChikV infection and those with dengue infection.

Notably, the project's research activities also contributed to the **validation of a novel, more sensitive, specific and less time consuming technique for dengue detection which may have commercial applications**.

Identification of the Reservoirs of Animal Influenza Viruses in Trinidad and Tobago

Project Lead: Professor Christopher Oura

Thematic Area: Public Health

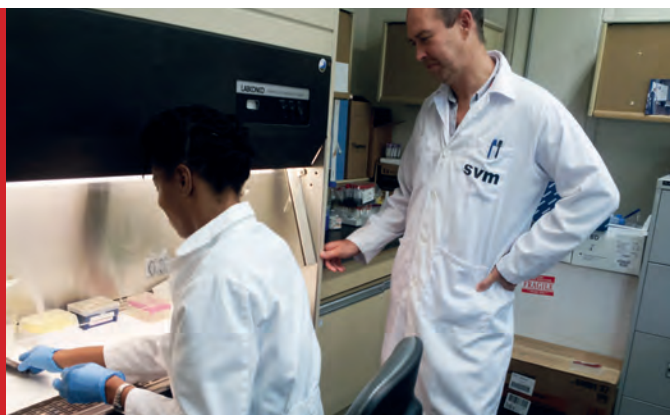
RDI Fund Grant: \$800,000

Project Duration: 36 months

Website: <http://sta.uwi.edu/rdifund/projects/animaldiseasestt/>

Contact: chris.oura@sta.uwi.edu

Impact Category: Health, Technological, Economic, Policy



led, for the first time, to the determination of the seroprevalence of various high priority avian viral diseases amongst layers, free-range chickens and wild birds (including Avian Influenza, Newcastle Disease, Infectious Bronchitis, Infectious Bursal Disease, Avian Metapneumovirus, Inclusion Body Hepatitis, Infectious Laryngotracheitis), as well as the determination of the seroprevalence of various high priority swine viral diseases amongst pig populations (including Swine Influenza, Porcine Parvovirus, Porcine Coronaviruses, Porcine Circovirus-2 and Classical Swine fever).

Importantly, **Avian Influenza virus was not found circulating in the domestic layer chickens that were sampled**, an important conclusion given the importance of Avian Influenza globally. The project team did however identify various strains of Swine Influenza circulating in pigs in T&T. The project team thus **provided vital surveillance information to the Ministry of Agriculture**. The team also **presented recommendations for improving the prevention, control and treatment of priority poultry and swine viral diseases have already been provided to vets at the Ministry of Agriculture, farmers and livestock keepers of T&T**. This can help to reduce the economic impact of the viral diseases on their livestock.

With the support of the Ministry of Agriculture, this project led to **the development of a joint ministry and UWI- School of Veterinary Medicine molecular biology**

Project Objective

To gain a better understanding of the animal reservoirs, the epidemiology and the risks associated for public and veterinary health of influenza in Trinidad and Tobago and to set up standardized techniques related to surveillance sampling and laboratory testing for animal Influenza viruses in T&T.

Impact Highlights

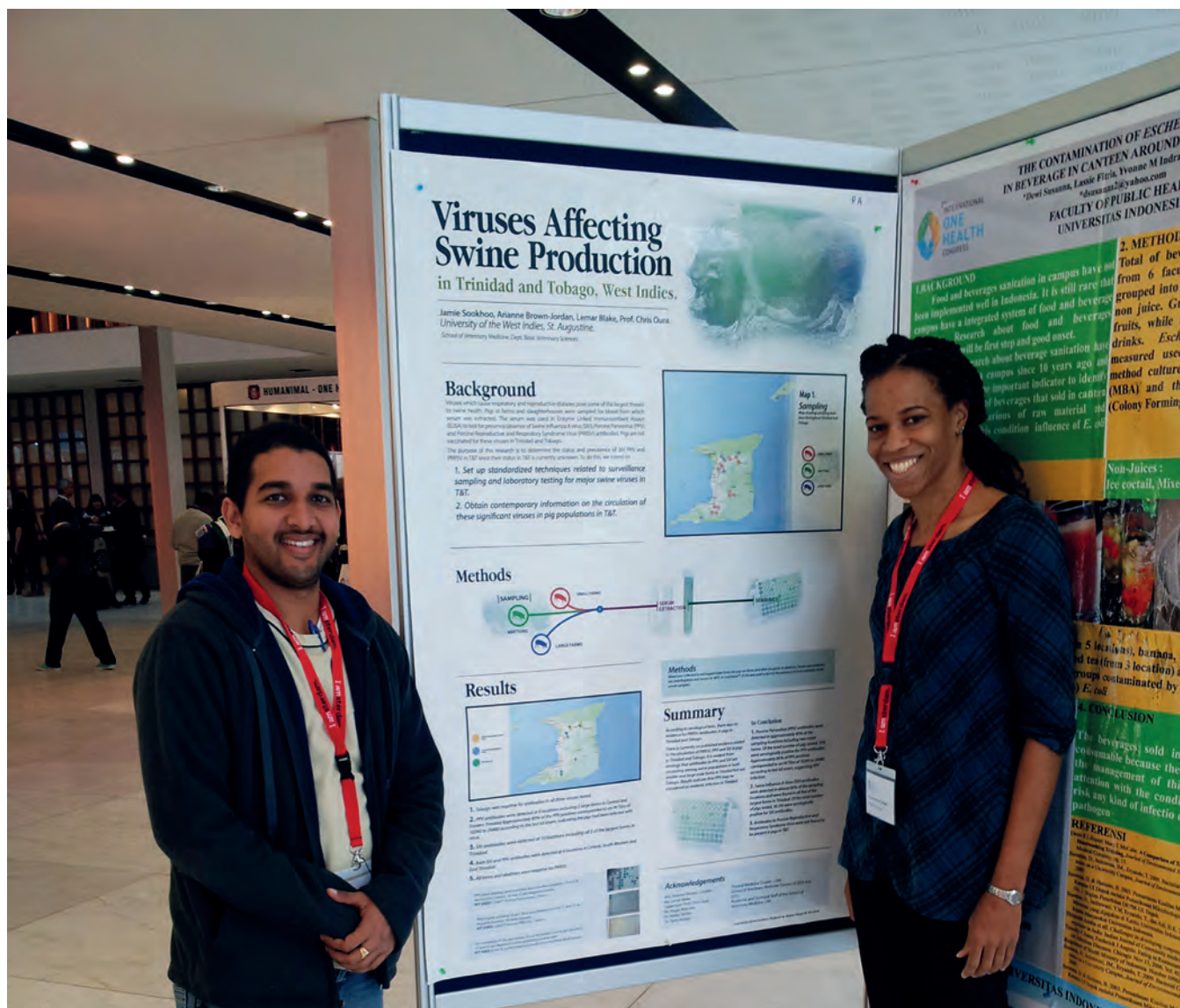
While this project initially set out to characterize influenza viruses circulating in animal populations in Trinidad and Tobago, the scope of the project expanded to look at other pathogens that were considered by livestock producers and farmers to be of high priority in the country as well.

Prior to this project, very little was either known or understood about the prevalence and incidence of economically important viruses of poultry and swine in Trinidad and Tobago. **This team's work**

diagnostic research facility. This facility has been set up with all the relevant equipment so it can be used to diagnose high priority animal / zoonotic pathogens in T&T. **This is the first such facility within T&T and will provide the Ministry of Agriculture and the livestock industries of T&T with the ability to carry out the rapid and efficient diagnosis of priority notifiable and non-notifiable viral pathogens should they gain entry into T&T.**

The rapid, sensitive diagnosis of priority pathogens will enable control measures to be put in place in a timely manner so potential losses due to disease outbreaks and incursions can be kept to a minimum.

Notably, this development led to the molecular characterization of the Infectious Bronchitis virus (IBV) and Inclusion Body Hepatitis viruses (IBHV) that are circulating and causing significant disease in poultry in T&T. This information, when conveyed to farmers and livestock keepers, **enabled improved control and prevention strategies for these two important viruses to be implemented at a farm level.** This project has introduced a more proactive approach towards dealing with viral pathogens in Trinidad and Tobago and has enabled sampling on many farms that have had little to no veterinary contact in years. Farmers who were previously unaware are now informed of the veterinary services available to them.



Mitigating the Dementia Tsunami in Trinidad and Tobago

Project Lead: Dr. Gershwin Davis /

Dr. Nelleen Baboolal

Thematic Area: Public Health

RDI Fund Grant: \$550,000

Project Duration: 24 months

Website: <http://www.dartt.org.tt>

Contact: nelleen.baboolal@sta.uwi.edu

Impact Category: Health, Policy, Societal

Project Objective

To determine the impact of dementia and its prevalence in persons aged 60 and above and determine the associated cost and implications for the family and caregivers, health care system and economy of Trinidad and Tobago.

Impact Highlights

The Dementia project sought to describe the living circumstances and care arrangements of people with dementia. Given the ageing of the local population and shifts in population dynamics predicted, the issue of dementia is becoming increasingly urgent from a policy perspective.

Based on the comprehensive findings from this study, the first of its kind to be conducted in the country, a draft document, "Profile of the Elderly in Trinidad," was submitted to the Ministry of Health. This



document examined usage patterns of health facilities, demographics and lifestyles that impact on health. **The Ministry of Health has expressed keen interest in using the findings to inform national policy and assist in the planning of services for the elderly. The Ministry also committed \$300,000 in counterpart support for this study.** The project team has also gotten involved in the activities of the Alzheimer's Association of Trinidad and Tobago, part of Alzheimer's Disease International. The project team has contributed to the annual activities of World Alzheimer's month in September and contributes to monthly care giver support meetings in Port-of-Spain, San Fernando, and Arima. Topics covered in these meetings include assessing levels of caregiver stress, coping with caregiver stress, and nutrition and the elderly.

Based on the preliminary findings of this study, the team found that further research on persons who were screened positive for dementia is needed. **A report entitled "Chronic disease and health profile of the elderly in Trinidad in 2014" has been submitted to the Caribbean Public Health Agency (CARPHA) for consideration.** Of significance, the most commonly self-reported condition was hypertension and twenty two percent of the elderly population had two of the three chronic conditions hypertension, diabetes or heart disease.

A New Volcanic Emissions Monitoring Network: Integrating Community Engagement and Public Health Hazard



Project Lead: Dr. Erouscilla Joseph

Thematic Area: Public Health

RDI Fund Grant: \$550,000

Project Duration: 24 months

Website: <https://www.youtube.com/watch?x-yt-ts=1422411861&v=xy0S5xJzDvE&x-yt-cl=84924572#t=149>

Contact: pjoseph@uwiseismic.com

Impact Category: Health, Technological, Teaching/
Training, Policy

Project Objective

To strengthen the capacity of The UWI-SRC to reduce the cost and impact of disasters through enhanced disaster preparedness by the application of low cost technologies in vulnerable communities of volcanic islands of the Lesser Antilles.

Impact Highlights

The Volcanic Emissions Monitoring Network project sought to enhance the capacity of local health and disaster management authorities in Saint Lucia and to increase awareness of residents in volcano-based communities and tourists visiting such areas so as to minimize the potential harmful health effects

associated with exposure to such environments. The project also sought to investigate the feasibility of low cost monitoring and including communities in an active monitoring network.

The project team **developed a low-cost, low technology monitoring technique for monitoring the concentration of ambient sulphur dioxide and other gases** which may be released due to volcanic activity. **Two secondary schools have since adopted the low cost monitor developed by this project team as an ongoing teaching/experimental tool in their CAPE syllabus.**

Based on the research conducted, the project was able to identify specific hazards at Sulphur Springs, St Lucia, instruct on mitigation methods, and develop educational material on hazard management at that site to be distributed to visitors, workers and residents. Since this study was the first of its kind in the region, it generated significant new information concerning the potential impact of exposure to volcanic emissions on human health, particularly of staff, residents and visitors to the Sulphur Springs Park.

Documentation and Digital Development of Heritage Languages in Trinidad and Tobago

Project Lead: Dr. Benjamin Braithwaite

Thematic Area: Technology & Society: Enhancing Efficiency, Competitiveness & Social and Cultural well-being
RDI Fund Grant: \$249,768

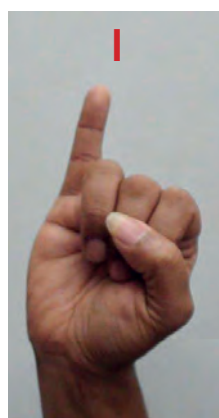
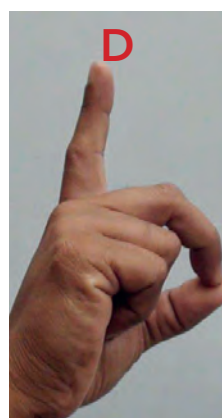
Project Duration: 31 months

Website:

<http://sta.uwi.edu/rdifund/projects/ttel/index.asp>

Contact: benjamin.braithwaite@sta.uwi.edu

Impact Category: Societal, Cultural, Teaching/ Training, Policy



edge in their respective fields. Dr Benjamin Braithwaite's project on Endangered languages has resulted in **new courses being introduced at The UWI in Patois and Trinidad and Tobago Sign Language (TTSL), resulting in more people learning these languages as adults than ever before.**

This project created language archives for TTSL, Patois and Bhojpuri as well as 11 podcasts documenting the three languages. The projects activities also resulted in the creation of a TTSL medical information website: deafft.com to provide crucial medical information to deaf people in T&T in their native language TTSL. **This information has never been publicly available before.** In addition, 20 deaf interpreters and 20 hearing interpreters were trained - a first in our country. **One of those deaf interpreters went on to interpret the 2015 national budget, the first deaf native signer of TTSL to be employed as an interpreter at a major national event.**

The project team has facilitated a vibrant online community of persons across the Caribbean, increasing awareness in the area of language endangerment and engaging the citizens of the region in their preservation.

Project Objective

To contribute to the documentation of three endangered languages, Trinidad & Tobago Patois, Trinidadian Bhojpuri and Trinidad & Tobago Sign Language before they disappear, and to raise public awareness of the status of the languages, their users, and the issues surrounding language death.

Impact Highlights

Most of the projects funded have had significant teaching and training outcomes, many of which go beyond the classrooms of The UWI. However, it is important that the research that is being undertaken is also informing the training of our graduates, ensuring that the knowledge they are gaining is at the cutting

AgriNett, An Agriculture Knowledge ePortal: Research on Intelligent Decision Support for enhancing Crop and Livestock Enterprise Management

Project Lead: Dr. Margaret Bernard

Thematic Area: Technology & Society: Enhancing Efficiency, Competitiveness & Social and Cultural well-being **RDI Fund Grant:** \$800,000

Project Duration: 36 months

Website:

<http://sta.uwi.edu/rdifund/projects/agrinett/>

Contact: DCIT.Agrinett@gmail.com

Impact Category: Technological, Economic, Policy, Societal



with accurate land use information in real time.

- AgriDiagnose (testing) - allows farmers to carry out preliminary diagnosis on pest, disease and abiotic problems affecting their crops.

This project team also **created several open access databases, making previously hard to find data easily accessible to anyone interested in using it including policy makers, researchers, farmers, other app developers, consumers.** This effort has significantly increased data accessibility by bringing data out of the silos they are created in so they can be used by a wider group. Several institutions are now sharing their data on the open data platforms created by this project. These databases include:

- Maps.tt - an open data repository for institutions to share information on maps and spatial data; a great resource for policy makers and app developers.
- Data.tt - an open data repository for research data producing institutions to share data, currently in the areas of germplasm collection data, field evaluation of product and systems, census and population analysis, price data collection, and market monitoring data.
- AgriDiagnose Pathology Tool - a platform for the storage and sharing of research information on pest, disease and abiotic problems affecting crops generated by qualified local and regional pathologists.


Project Objective

To develop an e-agriculture information system that can serve as a platform for solutions which will engender improved communication, efficiency and effectiveness of the agriculture sector.

Impact Highlights

The AGRINETT team **developed several apps to assist farmers and policy makers.** All apps created by this team are free of charge and are currently available for android phones at the Google play store:

- AgriExpense (4.3 star rating, 500-1000 installs) - assists farmers in the financial management of their farms and aids in value chain deliberations.
- AgriPrice (3 stars, 100-500 installs) - provides accurate and timely data for the trade of produce locally, valuable information for farmers and consumers.
- AgriMaps (4.7 stars, 100-500 installs) - provides farmers, extension officers and agricultural investors

A photograph showing three men in a lush green field. On the left, a man in a light blue shirt and a dark cap with 'PURA' on it is looking down. In the center, a man in a light-colored shirt is also looking down. On the right, a man in a light blue shirt and glasses is holding a smartphone and pointing at it. They are all focused on the plants in front of them. The background is filled with tall green plants and palm trees under a clear sky.

“Agrinett is a breath of fresh air, probably the best idea for the acceleration of agricultural development in the Caribbean in the last 10 years”

**Mr. Norman Gibson
Head - Trinidad and Tobago Unit, CARDI**

The AgriNett Project offers Agriculture Stakeholders an opportunity to increase their productivity and efficiency through the use of Information and Communication Technology. Agriculture in Trinidad and Tobago must now be driven by a more scientific approach utilizing the current tools that are available. The AgriNett project provided some of those tools that are required to help increase our competitiveness in the local, regional and international market.

**Mr. Prakash Ragbir, Manager,
ICT Division, NAMDEVCO**

For more information on the RDI Fund and its projects, visit <http://sta.uwi.edu/rdifund/index.asp>
1.868.662.2002 ext. 84427 | rdifund@sta.uwi.edu

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