

An Inquiry into the Role of NIHERST in the Development of Science, Technology, Engineering and Mathematics (STEM) Sector of Trinidad and Tobago

NIHERST Responses on Recommendations

Objective 1: To examine the role of NIHERST in the development of Science Technology and Innovation (STI) policy to facilitate economic diversification	
Recommendations	NIHERST's Response
<p>i. The Committee endorses NIHERST's recommendation for the development of the appointment of a Chief Scientific Advisor to the Prime Minister and Scientific Advisors to specific government ministries and the Chief Parliamentary Counsel.</p>	<p>Research will be conducted on what is presently international best practice for the appointment of such Scientific Advisors including the criteria for the selection of members and their terms of reference.</p> <p>This initiative is Government wide and will require legislative action to support.</p> <p>Preparation of informative instruments that share the importance of the inclusion of STI advisors in the public service is also a Strategic Initiative of NIHERST's Research Agenda, as identified on the Strategic Plan.</p> <p>At reconvened 145th Meeting – 29th June 2020, of the NIHERST Board of Governors, a note was tabled on <i>the Establishment of a Scientific Advisory Council for Trinidad and Tobago (SACTT)</i>. The Board approved the recommendation to proceed with further exploration to ascertain the procedures for establishment of a SACTT, the resources required and a schedule for implementation.</p> <p>The Institute can administer a targeted call for Advisors for the Council.</p> <p>The following are targeted for completion by Institute by September 2022:</p> <ol style="list-style-type: none"> 1. Upgrade of the Draft National Science and Technology Policy; 2. Cabinet Note to accompany the Draft National S&T Policy prepared for approvals and submission.

<p>ii. The Committee also endorses NIHERST’s recommendation for there to be coordination with relevant stakeholders from the public sector and academia for the creation of scholarships and sabbatical opportunities for STEM practitioners under the proposed Science and Technology Fund.</p>	<p>A note to Cabinet to seek approval for the establishment of the National Science and Technology Fund and oversight committee comprising industry, academia and government will be drafted.</p> <p>The Institute will identify technical experts to serve on an independent evaluation committees of the National Science and Technology Fund.</p> <p>A fully staffed and operational department to administer the national Science and Technology Fund is also required.</p>
<p>iii. Further to the endorsements of the above, the Committee recommends the involvement of the following entities in collaborating with NIHERST towards the development of STEM-based economic activities in Trinidad and Tobago:</p> <ul style="list-style-type: none"> o The Ministry of Digital Transformation o Evolving Tecknologies and Enterprise Development Company Limited (e Teck) o The Ministry of Trade and Industry o The Ministry of Energy and Energy Industries o The Ministry of Planning and Development 	<p>NIHERST will explore further opportunities to partner with the identified Ministries and agencies, with the intent of developing STEM-based economic activities in Trinidad and Tobago. NIHERST continues to support the work of the Ministry of Digital Transformation in its aggressive agenda to provide appropriate infrastructure and the required enabling environment to support the country’s digitalisation and digitisation efforts. This has occurred mainly through two initiatives namely NIHERST continued participation in discussions to modernise the legal framework for Electronic Transactions in Trinidad and Tobago; and in the more recent past, NIHERST participation in the Ministry’s Digital IDs Data Survey. These initiatives are considered essential to strengthen the delivery, reach and impact of the Institute’s STEM offerings.</p> <p>NIHERST has long standing relations with the Ministry of Planning and Development both through the National Transformation Unit and the Public Sector Investment Programme (PSIP). This relationship has contributed to improving the performance and implementation of a number of the Institute’s STI and research programmes. More recently the Institute benefitted from its participation in Labour Skills Assessment training hosted by the Ministry of Planning and Development. It is the intent that the training gained will propel</p>

	<p>NIHERST’s developmental work on its STEM Labour Needs Study funded by ILO.</p> <p>In the past, the Institute has also benefitted from the contributions of both the Ministry of Trade and Industry and the Ministry of Energy and Energy Industries in its research programmes and publications such as the Trinidad and Tobago’s Energy Services Sectoral Mapping Study (2019) and the current Sectoral and Innovation Mapping Study on the Software and Web Development Industries.</p> <p>It is foreseen that there are opportunities for synergistic relations with eTecK under such programmes as the Institute’s Fab Lab programme and for the establishment of more formal relationships with the aforementioned Ministries under a Memorandum of Cooperation. NIHERST can explore with eTecK to build out industrial business parks in communities.</p>
<p>iv. The Ministry of Education is challenged to develop an implementation schedule to address key findings of NIHERST’s studies relevant to teaching and learning by the second quarter of 2022.</p>	<p>NIHERST will continue to support the Ministry of Education in its development and execution of teaching and learning initiatives, under an implementation schedule aligned with key findings of NIHERST’s studies.</p> <p>In 2020, NIHERST supported the Ministry by designing and detailing a project in collaboration with the then Chief Education Officer and departments of the Ministry of Education to train teachers to deliver the CAPE Animation & Game Design Syllabus. To fund this initiative, NIHERST led the drafting and preparation of a grant proposal to secure international financing. Significant work was also undertaken to identify and select appropriate regional partners with which to collaborate, to define the key elements of the proposed project plan; and develop an accompanying monitoring and evaluation framework. This MoE initiative supported by NIHERST was aligned with NIHERST’s Sectoral and Innovation and Mapping Study on the Animation Industry of Trinidad and Tobago</p>

	<p>(2018), which identified under its associated Action Plan the thematic area of Building capabilities for the Animation Industry of Trinidad and Tobago - with MoE as a responsible agency under the aforementioned teacher training initiative.</p> <p>Similarly, NIHERST will strengthen and expand its relations with departments of the Ministry such as the Curriculum Planning and Development Division (CPDD), and the Research Planning and Technical Services Division.</p> <p>NIHERST will also be guided by the Ministry of Education on points of contacts of the various divisions for the collaboration and implementation of initiatives.</p> <p>At present, NIHERST obtains feedback and input from departments of the Ministry in its design and contents of its STI surveys, to ensure that required data is captured. The results of NIHERST's studies are also shared with the MoE departments to influence policy making, programme development and support evidence-based decision making. NIHERST will hold ongoing discussion with its partners within the MoE to ensure its studies are more relevant, applicable/useful and impactful in the development of Science Technology and Innovation (STI) policy to facilitate economic diversification.</p> <p>NIHERST will as a first step prepare a comprehensive summary report of findings relevant to teaching and learning to submit to the Ministry by the end of the second quarter of 2022.</p>
<p>v. NIHERST should play an integral role in consulting with all relevant state entities towards developing implementation plans in light of NIHERST's findings toward the development of the STEM sector. Notwithstanding NIHERST's capacity to conduct research, NIHERST must ensure that its limited resources are being utilised to execute research that</p>	<p>It is agreed and NIHERST will play an integral role in consulting with all relevant state entities towards developing implementation plans in light of NIHERST's findings toward the development of the STEM sector i.e. Education, Energy and Animation.</p>

<p>should rightfully be done by the competent authority.</p>	<p>The Institute will pursue the development of an overarching Memorandum of Cooperation (MoC) or formal instrument to concretise NIHERST role in conducting research with the different competent authorities. A cooperation agreement outlining the support to be provided by the competent authority would be examined at the level of Permanent Secretary.</p>
<p>vi. As part of its response to this report, NIHERST should provide a status update on the findings of the following:</p> <p>a. The ICT and Web Development SIM Study;</p> <p>b. The Tourism SIM Study;</p>	<p>Status update on:</p> <p>a. The ICT and Web Development SIM Study; The study required a review of the research and rework of several segments, offered by the new insights and analyses given the current context triggered by the COVID-19 pandemic. It speaks to the opportunities and the challenges caused by this crisis. A review of the development plans for the ICT sector from 2003 to present to support both the demand and supply side of the ICT Software and Web Development Industry was also conducted. The % contribution of the Information Technology Sector to the National GDP relative to other sectors of the national economy over a 5-year period has been conducted with careful analysis being rendered given that the method of calculation has been changed several times by the Central Bank. The opportunities derived from the COVID-19 pandemic namely the quest for new innovative IT solutions in the areas of education, healthcare, teleworking, e-commerce has also been noted for this study. Work is being done on the refinement of the linkages between actors in the ICT Software and Web Development Innovation System with the expectation of having this document completed.</p> <p>b. The Tourism SIM Study: This study will commence in April 2022 with the Recruitment of 2 Research Officers for this project funded under the PSIP. This project is targeted to be completed in one year.</p>

<p>c. Proposal to advance the strengthening of secondary school teachers' capacity to deliver on the CAPE Animation and Game Design Syllabus.</p>	<p>c. Proposal to advance the strengthening of secondary school teachers' capacity to deliver on the CAPE Animation and Game Design Syllabus: The COVID -19 pandemic interrupted this initiative and it has not since been revisited. Funding.</p>
<p>xiv. As part of its response, NIHERST should provide an update on the following:</p> <ul style="list-style-type: none"> - Establishing a formal relationship with the Public Service Academy to provide training for Public Servants in research methodologies and practice. - The partnership with WASA in developing a rainwater harvesting system for water-scarce communities. - Plans to meet with the Ministry of Planning and Development to discuss conducting a manpower audit of the STEM sector in Trinidad and Tobago. - Collaboration with the Intellectual Property Office of the Attorney General and Ministry of Legal Affairs to treat with Intellectual-Property related issues. - Availability of technical and analytical support and peer reviews to key national institutions. 	<p>Status update on:</p> <ul style="list-style-type: none"> - Establishing a formal relationship with the Public Service Academy to provide training for Public Servants in research methodologies and practice: In 2021 contact was made with the Public Service Academy to explore opportunities for the institute to provide training to public servants in Research Methodologies. However, the area of training was not prioritized for execution during that period. In 2022 contact was made with the Office of the Director Public Services Academy, to discover the process involved in registering the institute as a Training Provider, for Research Methodologies and Practice. Thereafter, a formal submission will be forwarded to the Academy for consideration. - The partnership with WASA in developing a rainwater harvesting system for water-scarce communities: Following meetings with WASA and the Water Resources Agency, NIHERST was contacted by the Adviser to the Minister of Public Utilities and invited to collaborate under a National Rainwater Harvesting Programme. NIHERST via correspondence dated 30th August, 2021, from the Ministry of Public Utilities, was informed that Cabinet had agreed to the execution of a National RWH Programme and the establishment of a

Project Management Committee. NIHERST was identified as a part of this committee, assisting with the execution of a Rainwater Harvesting Programme for Trinidad and Tobago.

Correspondence dated the 1st March 2022, from the Programme Coordinator (Ag.), Green Fund Executing Unit, where NIHERST was informed of an approved budget of \$9,742,802.00, including inter alia for the installation of 15 rainwater harvesting systems, thirteen to be located in Trinidad and two (2) located in Tobago over a 5 year period. This initiative will be included under the Rainwater Harvesting Programme for Trinidad and Tobago.

- **Plans to meet with the Ministry of Planning and Development to discuss conducting a manpower audit of the STEM sector in Trinidad and Tobago:**

The Institute met with the Ministry of Planning and Development on March 29th, 2021 to discuss NIHERST role in the National Manpower Plan as well as the Assessment of STEM Labour Needs in Emerging Sectors study. The Ministry of Planning and Development agreed to include NIHERST on the National Manpower Plan initiative and to include STEM as one of key focus area. In addition, the Ministry encouraged the Institute to pursue annual Assessment of STEM Labour Needs.

Representatives of the Institute attended training hosted by the Ministry of Planning on Labour Skills Assessment in February 2022.

- **Collaboration with the Intellectual Property Office of the Attorney General and Ministry of Legal Affairs to treat with Intellectual-Property related issues:**

NIHERST has informally collaborated with the Intellectual Property Office (IPO) on various undertakings for a number of years.

In April, 2021, a draft Memorandum of Cooperation was finalised by both parties, NIHERST and IPO. The Permanent Secretary (PS) of the Ministry of Education, was informed and the IPO forwarded the draft to the PS Ministry of the Attorney General and Legal Affairs for sign-off. Correspondence dated the 27th April 2021, from the Permanent Secretary (PS) of the Ministry of Education, acknowledged the MoC and welcomed the collaboration.

The areas of collaboration stipulated in the draft are as follows:

- i. Raise awareness of STI and IP through initiatives such as IP Clinics for NIHERST clients, IPO's IP4TTYouth at NIHERST's Innovation Camps and the Korean Intellectual Property Office (KIPO)'s Global IP Sharing-Appropriate Technology (AT) Competition targeting NIHERST clients.
- ii. Draft and develop NIHERST's organizational IP policy.
- iii. Integrate 21st century skills (learning and innovation) into local curricula.
- iv. Collaborate in the process towards establishing NIHERST as a Technology Innovation Support Centre (TISC).
- v. Facilitate the implementation of joint programmes and projects.
- vi. Promote the exchange of information in order to further the development of cooperation.

At present, both parties continue to collaborate on IP Clinics, IP4TTYouth, TISC, and most recently showcasing of NIHERST Youth Innovators for World IP Day 2022. NIHERST is also in the process of drafting an organisational IP policy, based on templates provided by the IPO.

- Availability of technical and analytical support and peer reviews to key national institutions (2021-2022):

In June 2021, comments were submitted on the European Union's, Community of Latin

	<p>American and Caribbean States (EU-CELAC) Strategic Roadmap;</p> <p>In August 2021, prepared contribution on the Identification of New Areas of Cooperation between the Republic of Trinidad and Tobago and the Republic of India-Science and Technology and Space</p> <p>In November 2021, prepared contributions on the Bilateral Cooperation between South Korea and T&T.</p> <p>In December 2021, reviewed UNESCO’s report: titled Situational Analysis of STEM Education Policy and Data Latin America and the Caribbean: Country Profile Trinidad and Tobago</p> <p>In December 2021, the Institute received correspondence from the Environmental Management Authority, on NIHERST’s submission of comments on the draft Legal Notices for the designation of the Trinidad Howler Monkey and Trinidad Capuchin Monkey as Environmentally Sensitive Species. The EMA accepted ~70% of the recommendations made. The public comment period for the designation of the Trinidad Howler Monkey and Trinidad Capuchin Monkey as Environmentally Sensitive Species commenced on January 10, 2022.</p>
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<p>Objective 2: To assess the challenges faced by NIHERST in fulfilling its mandate</p>	
<p>Recommendations</p>	<p>NIHERST’s Response</p>
<p>i. NIHERST should improve its communications, promotions and marketing strategy geared towards improving its public engagement based on an assessment of the gaps in its current strategy.</p>	<p>The development of an Integrated Marketing & Communications plan has been developed to treat with any gaps/shortfalls re: marketing, communications and promotions of the Institute’s offerings, messaging, positioning and brand image</p> <p>The IMC strategy focuses on the following:</p> <ul style="list-style-type: none"> • Differentiation / Brand Refresh / Virtual Experience,

- Brand Awareness,
- Business Development Strategy - Revenue Generation

Messaging: Control the messages communicated to all stakeholders, provide accurate and timely information to stakeholders, position the institute as the preferred STEM provider

Channel: Expand communication channels, Increase online engagement and audiences, Develop targeted messages to engage platform users

Audience: Increase engagement level of employees and stakeholders, provide innovative products and services, recapture the attention of NIHERST latent one-time customers, improve NIHERST customer experience

Gap analysis (present and future state goals) to be developed and actioned. Development of a dedicated public engagement strategy that aligns to the strategic goals of the Institute:

Enhancement of Public Engagement tactics re: outreach

- Increase in school interventions/visits
- Development of Roving Caravan to different school districts

Collaborative research, citizen science, community engagement, and engagement with partners.

- Increase in consultations
- Development of key strategic relationships. Of note – NALIS, EMA, ATLANTIC LNG, Office of the Parliament
- Gamify community engagement – competitions, challenges, asking for feedback, mall visits
- Increase in media appearances and P.R. opportunities

	<p>The Institute will seek to engage in low-cost/no-cost public relations opportunities that offer significant reach</p> <p>SOCIAL MEDIA OVERVIEW (Sept 2019 –Sept 2021) Facebook: 116% increase in reach & 11% increase in followers Instagram: 15% increase in reach Twitter: 75% increase in reach YouTube: 18% increase in new subscribers.</p>
<p>ii. As part of its response to this report, NIHERST should provide the Committee with a revised plan for income generation in light of Covid-19 restrictions.</p>	<p>In light of COVID-19 the Institute pivoted it’s in person offerings to virtual platforms. The virtual programmes have been generating income for the Institute. The July/August 2021 vacation camps had an overwhelming response in which registration was closed within 2 weeks of its launch. At that point applications were received for 734 camp spots, with a maximum of 610 spots provided.</p> <p>Grants and sponsorship pursuit: The Shell contract agreement continues for the fiscal 2022, with the sponsorship of NIHERST’s programmes, Sci-TechKnoFest, FLL and NASA. In-kind sponsorship for the Sci-TechKnoFest event has also been secured. Developmental funds under the PSIP and the EDF has also been allocated for 5 projects:</p> <ul style="list-style-type: none"> ○ Teach Me ○ STI Mapping and Priority Setting ○ Enhancing Agriculture through Technology ○ Relocation of NIHERST ○ Digital Fabrication Lab (Fab Lab) to Fab Academy <p>The Institute continues to explore opportunities for partnership, sponsorship and grants in an effort to reduce Government’s expenditure and gain revenue. Potential funding opportunities in 2021/2022 include:</p> <ul style="list-style-type: none"> ○ Atlantic LNG - consulting and guidance in development

	<p>and execution of the Atlantic’s Future Skills Centre programme.</p> <ul style="list-style-type: none"> ○ ILO - Assessment of STEM Labour Needs in additional Emerging Sectors in Trinidad and Tobago. <p>NIHERST Fab Academy training should be completed by July 2022. Each Fab Lab that participates in the Fab Academy program becomes part of a global Fab Lab / Fab Academy network. NIHERST’s Fab Lab will become a Node that offer the Fab Academy program. Income generation is anticipated through the enrolment of persons in Fab Academy digital fabrication programmes.</p> <p>The increased visibility of NIHERST’s Fab Academy as the first and only in Trinidad and the Caribbean, is also anticipated to attract more paying clientele for digital fabrication training and jobs.</p>
<p>iii. Based on its success in producing vital research on science and technology, NIHERST could consider offering its services as paid STEM consultants to regional and international governments desirous of developing the STEM sector in their respective jurisdictions.</p>	<p>The position of Vice President of Marketing and Business Development was advertised and is in the recruitment process. The selected candidate will effectively lead the marketing and promotion of national and regional STEM Education, building international partnerships for science advancement in existing and new markets and also lead the thrust to access corporate and grant funding sponsorships to secure financial sustainability of the Institute.</p> <p>NIHERST envisions strategic growth and development of the Institute for increased visibility, and profitability of science, technology and innovation [STI] across multiple sectors.</p> <p>NIHERST proposed approach is as follows:</p> <ol style="list-style-type: none"> 1. Science and Technology Maturity Analysis of target markets 2. Gap Analyses for target markets 3. Develop proposals for target markets to close gaps to meet the challenges of the 4th Industrial Revolution.

4. Membership in regional and intra regional Science and Technology bodies to identify and develop opportunities to provide services to relevant governments
5. Continually monitor developments in the respective markets and adjust approach as required.
6. Engage with Ministry of Foreign and Caricom Affairs to support outreach
7. Meet with targets to explore possibilities
8. Close contracts and implement.

NIHERST presented at the CIDI (Inter-American Council for Integral Development) Regular Meeting on 28 September 2021 on Science Technology, Innovation and Entrepreneurship to Promote the Inclusion of Women, Girls and Vulnerable Populations. This CIDI meeting offered NIHERST the opportunity to discuss actionable priorities to advance regional collaboration to address the gender and inclusion gaps on innovation, science, technology and entrepreneurship in the Americas. The Institute presented on initiatives to increase awareness and programmes interventions, which improve access to science, innovation and technology to improve the economic and social situation of women and populations in vulnerable situations.

The Institute also presented at the Meeting of the Inter-American Council For Integral Development (CIDI), themed: 'Science for Decision Making', on 26 October 2021. The assembly offered NIHERST and member states the opportunity to address, how to leverage data-driven decision-making in the Americas and highlight the importance of Research and Development (R&D) collaboration in addressing challenges for integral development. The Institute also had the occasion to share some of the models and initiatives that NIHERST has implemented to advance scientific decision-making.

	<p>NIHERST presented on Youth: Improving Skills and Readiness for Industry 4.0, virtually on December 7 2021, on the Sixth Meeting of Ministers and High Authorities on Science and Technology within the Framework of the Inter-American Council for Integral Development (CIDI). It provided an opportunity for the Institute to share its vision and good practices with other OAS Member States.</p>
<p>iv. NIHERST should consult with the Intellectual Property Office to secure patents and other legal protections for its Intellectual Property.</p>	<p>NIHERST is also in the process of drafting an Intellectual Property policy, based on templates provided by the IPO.</p> <p>The Institute will consult with the Intellectual Property Office (IPO), on the policy prior to finalisation. The document should cover all standard IP-related matters encountered by NIHERST.</p> <p>A representative from the Institute will also attend a webinar on “Educational licensing for the Caribbean region” March 21, 2022.</p>
<p>v. As part of its response, NIHERST should provide the committee with an update on:</p> <ol style="list-style-type: none"> 1. Its Human Resources needs and filling of vacancies; and 2. Efforts to new obtain new location to house its Head Office and NSC. 	<p>Update On:</p> <p>1. Its Human Resources needs and filling of vacancies;</p> <p>The Draft Estimates for fiscal 2021/2022 identified critical positions to be filled in terms of contract and permanent positions. A phased approach will be adopted in filling the positions.</p> <p>Phase #1 This will provide for the filling of executive leadership positions and key technical positions</p> <p>Phase #2 Identification of critical positions in consultation with leadership team. This will be completed after assessing the external environment in collaboration with the institute’s strategic objectives for 2022 and beyond.</p> <p>Outcome:</p>

At the end of the process a Revised Organization structure will be developed and submitted to the Board of Governors. Pending approval of management's by the Board, a submission will be made to HRAC, via the Permanent Secretary, Ministry of Education.

2. Efforts to new obtain new location to house its Head Office and NSC:

Engaging the Ministry of Public Administration

- A letter dated September 13th, 2021 was sent to the Ministerial Secretariat of the Ministry of Education requesting assistance in engaging the Ministry of Public Administration in acquiring suitable facilities for its operations
- The Ministry of Education responded via letter dated September 21st, 2021 indicating that NIHERST's request was forwarded for the attention of the Minister of Public Administration
- In January 2022, NIHERST received a telephone call from the Ministry of Public Administration, Infrastructure Division concerning the property at Serpentine Road

Colonial Life Insurance Company Limited (CLICO)

- NIHERST was invited to visit three CLICO properties:
 - Warehouse at O'Meara Road Arima
 - Land at Warren Road, Warrenville
 - Building at Mulchan Seuchan Road Chaguanas
- On September 30th, 2021 NIHERST conducted site visit of the CLICO property at Warehouse at O'Meara Road Arima
- NIHERST identified the warehouse at the E-tecK Business Park in O'Meara

Arima, as a potential suitable location for its relocation.

Engaging Corporation Sole

- A letter dated October 4th 2021 was sent to the Ministerial Secretariat of the Ministry of Education requesting assistance in engaging the Corporation Sole to occupy the CLICO managed facility at E-Teck Business Park at O'Meara Arima.
- The Ministry of Education responded via email dated November 19th, 2021 indicating that the matter will be forwarded for the attention of the Minister of Finance.

UTT Tamana Campus

- An Engineering Support meeting was held with NGC who conducted an Infrastructure Assessment
- An Engineer's Estimate was provided by NGC
- NIHERST Team conducted a site visit to UTT Tamana Campus
- UTT was provided with the Floor plans and data for NIHERST's current spaces
- UTT Team conducted a site visit of NIHERST NSC
- In December 2021, a meeting was held with UTT to further discussions on the matter
- UTT provided NIHERST with a summary of the remaining works to complete and operationalize the West Block at UTT Tamana Campus
- A joint team is to be established

A letter dated January 19th, 2022 was sent to the Commissioner of State Lands seeking assistance in obtaining the necessary approvals for lands in Couva allocated for the Science City Project by Cabinet Minute No. 554 dated March 8, 2012 and Cabinet Minute No. 2351 August 21, 2014, to be vested to NIHERST.

vi. As part of its response, NIHERST should provide a status update on the process of acquiring the UTT Campus in O'Meara.	NIHERST was informed of a Cabinet Decision dated October 28th 2020 for the Judiciary of the Republic of Trinidad and Tobago to utilize the O'Meara Campus.
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Objective 3: To examine the extent to which NIHERST has influenced the development of tertiary education and training in STEM.

Recommendations	NIHERST's Response
vii. NIHERST and the Ministry of Education should develop a collaborative relationship to assess the current Bursaries and Scholarships offered by the MOE to determine whether there is sufficient emphasis given to the areas needed to propel the STEM sector in Trinidad and Tobago.	<p>NIHERST will be conducting an Assessment of STEM Labour Needs in Emerging Sectors in collaboration with the International Labour Organisation (ILO) over the period 2022 - 2023. The Ministry of Education approved this undertaking by correspondence dated the 21st January and will be collaborating with the Institute on this initiative. The ILO draft Grant Agreement was forwarded to the Institute's lawyer to review on January 26th, 2022 as per the Ministry of Education recommendation.</p> <p>The study will identify the current as well as future STEM labour needs of emerging sectors. The Ministry of Public Administration was identified as one of the key stakeholders for this project. One of the objective of the study is to improve administration and governance of the Education and Training system by providing data on key areas where scholarships/bursaries are needed to encourage students in these fields of study.</p>
viii. Tertiary Institutions should collaborate with NIHERST and STEM-related Businesses to develop a STEM audit to assess the gaps between STEM education at the tertiary level and employability of graduates.	The Institute will be conducting an Assessment of STEM Labour Needs in Emerging Sectors during the period 2022-2023. This study will be undertaken in collaboration with the International Labour Organisation (ILO) and other key stakeholders. The study will involve mapping occupations in the priority sectors targeted for growth in the GORTT diversification strategy and identification of the STEM skills requirements for those

	<p>occupations. The Institute will collaborate with tertiary education institutions as well as the Accreditation Council of Trinidad and Tobago (ACTT) to integrate the STEM skills requirement into their programmes and to align their programmes to the needs of industry.</p>
<p>ix. Tertiary institutions should collaborate with NIHERST, the public and private sector to expand STEM-based internships available to students to improve employment opportunities for graduates.</p>	<p>NIHERST in Partnership with the Women’s Roundtable Action Platform Trinidad & Tobago (WRAP-TT) presented, November 2021 ‘Get in the know about your future in STREAM’. WRAP-TT is a network of the Women of Trinidad and Tobago's Diaspora for the mentorship, education, advancement and meeting the needs of beneficiaries in the Caribbean and the United States. NIHERST collaborated with inter alii UTT and UWI on awareness sessions targeted tertiary bound students, focusing on areas such as:</p> <ul style="list-style-type: none"> • Mentorship/internship opportunities in the diaspora; Fellowship opportunities; and the application process. <p>On November 24, 2021, selected NIHERST staff members were nominated to attend a train-the-trainer session on WhatsApp Business Learning Program for Small Businesses, hosted by Organization of American States (OAS) - in an effort to build small business through transformative technologies. The goal is to use modern digital and telecommunication technology to help small business connect with their customers. NIHERST will therefore host training sessions on the WhatsApp Business Learning Program to targeted audiences.</p> <p>STEM Work Experience Placements programme can be developed for both secondary and tertiary students. The aim will be to define and diversify students’ awareness with a STEM Work Experience Placement. Inspiring placements will be arranged with local employers for students during the summer holidays in both traditional and emerging sectors.</p>

	<p>NIHERST will work with employers to ensure the necessary precautions due to COVID-19 are taken. Objectives include:</p> <ul style="list-style-type: none"> • Peak students’ interest in various STEM careers. • Increase awareness of the type of career opportunities available in STEM • Promote essential skills required for the world of work. • Influence positive parental guidance on potential students seeking a STEM career.
<p>x. NIHERST should collaborate with the MOE and the Ministry of Youth Development and National Service and tertiary institutions to develop targeted STEM-based career guidance and mentorship programmes for students. These programmes could feature individuals who have been able to succeed locally in STEM -based careers.</p>	<p>NIHERST has, at December 2021, initiated a draft Memorandum of Cooperation with the Ministry of Youth Development and National Service. As outlined in the draft MoC, the cooperation activities and responsibilities between the Parties may include, but are not necessarily limited to, the following:</p> <ul style="list-style-type: none"> • A minimum of two (2) major activities, per year targeting underserved youth. • Identified activities which include internship and mentorship opportunities. • A train the trainer approach to building capacity and capability of STEM Education and 21st Century Skills including innovation and technopreneurship among youth in Trinidad and Tobago. <p>NIHERST collaborate with the Ministry of Education on the PSIP funded Teach Me project. This project hosted a STEM Career Day: STEM Professionals were invited to participate in the Teach ME STEM Professionals Career Day on August 27th 2021 as the culmination of the STEM Camps.</p> <p>The STEM Professionals gave presentations on their specific careers, providing first hand insight into ‘a day in the life’ of the profession. The speakers also conducted activities and interactive demonstrations, followed by individual breakout sessions for Q&A with the students. Two hundred and forty-one (241) primary and secondary</p>

school students were registered to attend. On August 27th, one hundred and eight (108) students were in attendance.

These STEM Professionals were selected after advertising the Call for STEM Professionals from under-served and under-represented communities. This project built a database of persons who were born or lived in underserved or under-represented communities and/or who studied in non-prestigious schools and despite circumstances managed to be successful in a STEM field or career.

A Meeting was held with the Mission OAS and the Executive Secretary of the Executive Secretariat for Integral Development (SEDI) November 2021 on: Exploration of Opportunities for Collaboration with the Organisation of American States (OAS). NIHERST was invited to explore possible collaboration on, and participation in, a number of OAS upcoming initiatives for the promotion and development of Science, Technology, and Innovation projects across OAS member states. This meeting continued previous conversations with the Ambassador, Permanent Representative to the Organization of American States and Ambassador Extraordinary and Plenipotentiary to the United States of America (*Engaging the Diaspora in STI*), and now included representatives from the Organisation of American States (OAS) including the, Executive Secretary of the Executive Secretariat for Integral Development (SEDI).

OAS activities of note discussed during this meeting for possible, Trinidad and Tobago's participation through NIHERST included:

1. Meeting of Ministers and High Authorities in Science and Technology (REMCYT) hosted virtually in Jamaica December 7-8, 2021;
2. Youth Academy on Transformative Technologies including a certificate training collaboration with Facebook on Augmented

Reality (AR) in January 2022. NIHERST was here invited to explore whether its Technopreneurship initiatives can also be offered under this Youth Academy;

3. The resumption in late 2022, of the Inter-American Teacher Education Network (ITEN) for strengthening of STEM education across OAS member states;
4. Prospecta Americas, whose goal is to improve the social appropriation of knowledge of 10 major transformative technologies with 10 accompanying Centres of Excellence across OAS Member States;
5. The Technology HUB, which seeks to expand networks and regional collaboration among strategic partners in R&D, management, technology transfer and commercialization.
6. Upcoming 14th Edition of the Americas Competitiveness Exchange;
7. OAS-WhatsApp Business Partnership training on November 24th 2021.

The Ambassador, Permanent Representative to the Organization of American States and Ambassador Extraordinary and Plenipotentiary to the United States of America actioned for follow-up the following items;

1. Ensure Trinidad and Tobago's participation at the Ministerial Meeting, both at the Ministerial level and NIHERST.
2. Suggested NIHERST's selection of participants for both the Youth Academy AR training and WhatsApp Business Training.
3. Suggested that NIHERST collaborate with ITEN since the NIHERST TeachME programme has similar goals and objectives.
4. Insisted that NIHERST become one of the Centres of Excellence for Prospecta Americas.
5. Insisted that Trinidad and Tobago is shortlisted and participates, through NIHERST in the Upcoming 14th Edition of the Americas Competitiveness Exchange;

	NIHERST has continued to explore and evaluate the opportunities presented at this meeting in the pursuit of promotion of STEM locally and regionally.
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The skills gap issue in today’s digital economy is reaching “crisis” levels with companies and countries feeling the brunt. The global economy is expected to have a shortfall of 100 million skilled jobs by 2025, mostly in Science, Technology, Engineering, and Math (STEM). 80% of professions are expected to require STEM skills, in the decade to 2030.

Significant STEM investment, in all sectors of our economy as a percentage of GDP, is required

- (i) to retain or achieve competitiveness at the firm or country level,
- (ii) to keep pace globally
- (iii) to help drive a vibrant economy for all.

Underinvestment, in the key driver for growth and prosperity (STEM) into the 21st century, will mean that as a society and country, we will fall further behind our comparators and widening the gap between economies, which are already ahead of us.