

Keynote Address by
Senator the Honourable Franklin Khan
Minister of Energy and Energy Industries

Opening Ceremony

**Caribbean Regional Training Workshop on Geo-Data
Digitization and Mapping of Development Minerals**

University of the West Indies, St. Augustine

Monday 6th November 2017

Head of the EU Delegation His Excellency Mr. Arend Biesebroek

CARICOM Representatives

Mr. Richard Blewitt, UN Resident Coordinator and UNDP Resident Representative for Trinidad and Tobago

Other representatives from the UNDP

Members and facilitators of the ACP-EU Development Minerals Programme

Professor Brian Copeland, Principal designate of the St. Augustine Campus, University of the West Indies (UWI)

Other Lecturers and Representatives from UWI

Representatives from the Ministry of Energy and Energy Industries (MEEI)

Caribbean Course Participants from Jamaica, Dominican Republic, Haiti, Suriname, Guyana and Trinidad and Tobago.

Specially invited guests

Members of the Media (if applicable)

Ladies and gentleman

A good morning to you all

It is with great pleasure that I welcome you to the opening of the Caribbean Regional Training Workshop on Geo-Data Digitization and Mapping of Development Minerals.

It is noted that the ACP-EU Development Minerals Programme is a three-year, €13.1 million capacity building program that aims to build the profile, and improve the management of Neglected Development Minerals – which includes industrial minerals; construction materials; dimension stones; and semi-precious stones.

This program is an initiative of the African, Caribbean and Pacific (ACP) Group of States, financed by the European Union and United National Development Programme (UNDP), and implemented by UNDP. I wish to express my heartfelt thanks to the ACP, EU and UNDP for providing

Trinidad and Tobago with the opportunity to host and participate in this event.

Locally, the Director of Minerals is the National Focal Point for Trinidad and Tobago, for the ACP-EU Development Minerals Programme. To date, citizens of Trinidad and Tobago have already benefited from participating in two (2) fully-funded training courses held under this programme, in 2016, viz:

1. Seven (7) participants, including persons from the public sector (of which three (3) were from the MEEI), academia, and the private sector (from the Quarry Association of Trinidad and Tobago (QATT)) in the Regional Training Workshop on Environment, Community, Health & Safety of Neglected Development Minerals held in Georgetown, Guyana from April 18th – 21st April 2016; and
2. One (1) participant (from the MEEI) in the Regional Training Workshop on Quarry Management of Dimension

Stones and Construction Materials held in Carrara, Italy
from June 15th -20th, 2016.

This program is expected to yield significant positive impacts for the beneficiary countries. Within the Caribbean region, Trinidad and Tobago is especially enthusiastic about this programme its applicability locally. With respect to potential impacts of this programme on Trinidad and Tobago, I will first share some points of interest regarding Trinidad and Tobago's Minerals sector.

- The local Minerals sector is primarily dominated by the production of aggregates for construction purposes. While statistics reveal that the Minerals Sector contributes approximately 0.1% of the total Gross Domestic Product (GDP) of the national economy, it supports the much larger construction sector in a significant way.
- A strategic environmental impact assessment study which was undertaken by the MEEI and completed in

2013, has estimated the recoverable reserves of Minerals in Trinidad and Tobago to be 467 Million Metric Tonnes. This represent Minerals identified only on approximately 2% of the total land space of Trinidad and Tobago, and assumed to be mined to a depth of only 10 metres from the surface.

- At present, there are eighty-eight (88) active mining operations (on both public and private lands), the majority of which comprise sand and gravel (46 quarries), and blue limestone (17 quarries). In Tobago the primary Mineral quarried is andesite. Other active quarries in Trinidad produce blue limestone, yellow limestone, sand, clay, porcellanite, asphalt and tar sands.

Some of the major planned and ongoing projects, which are expected to impact on the demand for construction aggregates locally, include:

- Three major highway projects: the Point Fortin Highway, Valencia to Toco Highway and Churchill-Roosevelt Highway extension to Manzanilla.
- The planned removal of all traffic lights from Port of Spain to Arima through the construction of Interchanges. The programme has started with the award of a contract for the Curepe interchange at the intersection of the Churchill Roosevelt Highway and the Southern Main Road, which is scheduled to be completed by 2019.
- Stimulating Private Construction in the Housing Sector: A new housing construction incentive programme will take effect from January 1, 2018 to encourage private developers to construct houses to satisfy the current demand for affordable housing. This programme will provide a cash incentive of up to \$100,000 to all approved developers who construct housing units in accordance with designs, specifications and prices agreed by the Government.

In an effort to establish a sustainable and resilient Minerals Sector, the following outlines some major initiatives to be undertaken by the MEEI for fiscal 2018:

- Continue with the ongoing Mineral exploration programme on State lands to identify suitable State lands for the conduct of future mining operations. Suitable lands so identified will be allocated in the future for mining purposes via the competitive bidding process, to meet the market demand for aggregates.
- A proposal for the establishment of mining zones in Trinidad and Tobago is currently before the Minerals Advisory Committee. In fiscal 2018, it is anticipated that mining zones will be established to ensure that mining and related activities are controlled within well-defined geographical boundaries, for the protection of the natural environment.

- Enforcement of the Minerals Act, Chapter 61:03 and Regulations, with a focus on collection of Minerals Sector related revenue i.e. royalty payments; as well as enforcement against illegal mining and related activities.

Ladies and gentlemen, one of the objectives laid out in the current National Minerals Policy is to promote the development of Human Resource Capacity and provide a framework for the increased application of Science and Technology within the Minerals Sector.

To this end, the introduction of up-to-date surveying technology i.e. an **Unmanned Aircraft System (UAS)** is currently being scoped by the MEEI.

A UAS, popularly referred to as Drones, refers to an aircraft and its associated elements which are operated with no pilot on board. **Unmanned Aerial Vehicles (UAVs)** are a component of an unmanned aircraft

system (UAS); which include a UAV, a ground-based controller, and a system of communications between the two. UAS technology is becoming increasingly popular in a wide array of applications. Particularly for surveying applications, UAVs can be used for the collection of accurate spatial data from above, thus yielding many benefits such as:

- Increased productivity, as surveying projects are completed in a much shorter timeframe, when compared to traditional surveying methods (which involve the use of a total station);
- Fewer man-hours required to produce large, accurate data sets;
- Reduced risk associated with having staff on site for the conduct of surveys;
- Ability to conduct surveys in areas which are difficult to access due to terrain, etc.

At present, the Director of Minerals, through the Minerals Division, is charged with the responsibility for managing the Mineral resources of Trinidad and Tobago. However, sufficient and up to date equipment to adequately meet

the needs of the Division does not exist. In this regard, the application of UAS technology can assist immensely in data collection for carrying out the monitoring, surveillance and enforcement functions of the Division as outlined below:

- To calculate volumes of minerals removed for the verification of mineral production and calculation of royalties owed by operators;
- To monitor activity of operators, such as verifying boundaries between operations and neighbouring State Lands; and
- To conduct surveillance in areas with illegal operations, where the shortage of resources, staff, vehicles and security are currently major challenges.

Overall, UAS technology can improve the execution of the functions of the Minerals Division. Similarly, this technology can be applied to enhance the efficiency and quality of data collection for other State agencies, which perform regulatory functions.

Ladies and gentlemen, the contents of this workshop on Geo-Data Digitization and Mapping of Development Minerals include Modules on:

1. Introduction to Geographic Information Systems (GIS);
2. Introduction to ArcGIS;
3. Geological Mapping;
4. Georeferencing;
5. Database concepts and database development;
6. Resource / Reserve estimation;
7. Field Mapping (including a full day field trip to two quarries);
8. The Practice of Geodata field mapping, digitization, and reserve estimate;
9. Web Mapping; and
10. Reporting of geological mapping and resource estimation results.

The Workshop will also include over fourteen (14) Exercises on the Module topics including:

1. Resource model and estimation;

2. Calculation of extent and volume of identified resource / reserve;
3. Estimation of the volume of the resource / reserve;
4. Updating of maps with field collected data;
5. Organizing the data in layers;
6. Map creation practice, QGIS;
7. Map creation practice, ArcGIS;
8. Data integration and interpretation;
9. GIS Data Analysis and interpretation;
10. Map creation practice, QGIS;
11. Map creation practice, ArcGIS;
12. Tools for Web Mapping;
13. Creating and publishing Web Maps – GeoServer;
14. Creating and publishing Web Maps – ArcGIS; and
15. Final Map preparation, QGIS / ArcGIS Practical

This Workshop is particularly relevant and timely to achieving the objectives of the MEEI. The learnings from this workshop, coupled with the acquisition of the relevant UAS technology and enterprise GIS software, will be applied to revolutionize the techniques used by the Minerals Division for the conduct of various surveys, and

will assist in obtaining maximum value from the data obtained from those surveys.

In closing, we recognize that for the Caribbean member states represented today, for each country's minerals sector, there may be both similar and unique challenges, especially after the recent onslaught of Hurricanes. The Geosciences Community is uniquely positioned to address these re-building challenges. It is important that we work collectively to share knowledge and experiences where possible, to overcome these challenges and adopt best practices. In this regard, over the next two (2) weeks, I urge the course participants to embrace this opportunity to the fullest. I wish you all a successful workshop, and hope that the learnings will be applied to contribute to enhancing the sustainability of each country's Minerals Sector.

Ladies and Gentlemen, I thank you.