# CASE STUDY

From the People of Japan

Japan-Caribbean Climate Change Partnership

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## Understanding the Present; Improving the Future

Case Study: Pilot Project for Emission Modelling in the Caribbean
The St. Vincent and the Grenadines, and Jamaica Examples


Carlos Ruiz Garvia (UNFCCC Team Lead) presents on the impacts of rising global temperatures.

# Background

In 2015, the 21st Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement requires all parties to put forward their best efforts through "nationally determined contributions" (NDCs). The NDC reflects the country's ambition and proposed steps for reducing emissions, taking into account the country's domestic circumstances and capabilities. These various NDCs allow those involved to determine whether the world achieves the long-term goal of the Paris Agreement - a sustainable low carbon future.

While the Caribbean contributes minimally to global emissions, the region is one of the most impacted by the negative effects. As such, Caribbean governments have decided to lead by example and have begun the process to reduce their emissions. In aid of this effort, the UNDP Japan-Caribbean Climate Change Partnership (J-CCCP) has provided support for the development of Nationally Appropriate Mitigation Actions (NAMAs*) in 7 Caribbean countries from 2017 to 2019 as one of the tools to implement countries' NDCs.

*** NAMAs**
**Nationally Appropriate Mitigation Actions (NAMAs) refers to a set of policies and actions that countries undertake as part of a commitment to reduce greenhouse gas emissions.**

**Participants at the SBL training in Kingston, Jamaica.**


**Eduardo Cardoso Filho (Associate Programme Officer at UNFCCC based in Bonn, Germany) presenting a certificate of completion to workshop participant.**

# Baseline Calculations and Emission Modelling in St. Vincent and the Grenadines, and Jamaica

In order to determine emission levels and to support emission tracking, it was decided to apply standardised baselines. A standardised baseline allows countries to have a universally comparable metric by adopting generally accepted procedure(s) to enable objective comparison or judgment. The standardised baselines are created by the implementation of any project to accurately measure the reduction of the prescribed initiatives under the NAMAs. The standardised baselines are created by partnering with the UNFCCC to utilise the most applicable Clean Development Mechanism (CDM) methodologies to determine the current emission levels in St. Vincent and the Grenadines (SVG) and Jamaica. To support the data requirements for the calculation for the transport sector in SVG the J-CCCP partnered with GIZ to utilise the TRIGGER tool. This tool was designed to calculate the total fuel consumption as well as CO2, CH4 and N2O emissions for five transport subsectors (aviation, road, railways, maritime, inland shipping) for one year.

The J-CCCP supported both countries in their data collection to support Standardised Baseline calculations for the water sector in Jamaica and emission modeling for the transport sector St. Vincent. This case study highlights the main challenges and lessons learned in establishing the baselines, which could be applicable for other Small Island Developing States (SIDS).

## St. Vincent and the Grenadines

In St. Vincent and the Grenadines, the NDC declared an unconditional, economy-wide reduction in greenhouse gas (GHG) emissions of 22 per cent compared to its current scenario by 2025. The NDC identifies the transport sector as one of the fastest growing sources of emissions and as such the Government of St. Vincent and the Grenadines decided to focus on this sector for their NAMA.

In St. Vincent and the Grenadines, the TrIGGER was utilised as insufficient data was available to support emission calculations for the transport sector. The tool allows for calculations based on assumptions to cover the current gaps in the data. It is a comprehensive but simple model which allows users to see the data and the model assumptions behind the calculations. It further allows for calculations to be improved over time because additional data can be added to the model when it becomes available. This methodology was applied in the first Small Island Developing State in the Caribbean for emissions calculations. The J-CCCP organized a workshop in St. Vincent and the Grenadines in May 2019 where GIZ was invited to provide some introduction to the departments with responsibility for emission tracking to sensitise participants on the applications of the model for emissions tracking and future calculations.

## Applying the Model

The model was originally created for Vietnam in 2018. The assumptions, such as, fuel specifications and average fuel consumptions, were values based on Europe (and other developed countries) and were not specific to the topography, vehicle composition and fuel consumption patterns for developing countries and specifically small island developing states. This presented a challenge as the model particularly could not account for the predominantly hilly terrain of St. Vincent and the Grenadines.

This raised the very important observation that models designed for large developed/developing countries may not meet the needs of SIDS.

There was limited accurate data for the transport sector in St Vincent and the Grenadines and the J-CCCP supported the project in collecting relevant data which was not available from secondary sources. Information was collected on vehicles within the government fleet including age, vehicle model, fuel consumption, mileage and country of origin from several government agencies, (which are assigned vehicles within the government fleet) including Customs and Excise, Ministry of Finance and Planning and Ministry of Transport. Information was also collected on the quantity and quality of fuel supplied from Sol and Rubis, the major fuel distributors on the island.

**Janak Shrestha (Programme Officer at Sustainable Development Mechanism Programme, UNFCCC ) guiding workshop participants through the steps of the calculations required to establish the standardized baseline in the Water Sector.**

The collected data was inputted, and the model allowed for assumptions to be applied, to adjust for the various data gaps. This tool allowed for the establishment of an inventory for a subset of vehicles in St. Vincent and the Grenadines and supported the identification of the scope of the interventions under the NAMA and the boundaries of the calculations for the standardised baseline using the approved CDM methodology.

## Jamaica

As part of the Government of Jamaica's commitment to reduce its emissions, the water sector was selected as an area of focus within their Nationally Appropriate Mitigation Action (NAMA), covering renewable energy and energy efficiency solutions and technologies. The water sector in Jamaica comprises of three sub-sectors: water supply, wastewater and irrigation, and there is substantial energy output required to run these three areas. As such, the plan proactively seeks to implement mitigation measures to reduce the country's carbon footprint, which is to be addressed primarily through reduced energy consumption in the water sector.

## Calculating Standardised Baseline in Jamaica

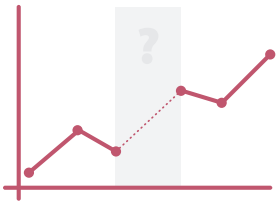
At the international level, under the Clean Development Mechanism, tools and guidelines were developed to create robust methodologies for determining baseline emissions. For the work in Jamaica, the CDM methodology AM0020 "Baseline methodology for water pumping efficiency improvements" was identified as most applicable considering the proposed scope of the NAMA interventions one of which targets the distribution of potable water. In assessing the methodology and its possible application to the calculation of the standardised baseline for Jamaica, several challenges were identified. The existing scope of the calculations addressed segments of larger countries and data collection requirements were too broad for application to the Jamaican context. To address this, recommendations were made to expand the scope of calculations to cover the entire country, as this is more applicable for SIDS where smaller country divisions would not be representative of the national emissions profile for the sector. Additionally, proposed data collection guidance was provided, to ensure more targeted and accurate data collection.

To address some of the challenges identified, Jamaica will submit a request to the UNFCCC Methodology Panel with recommendations for adjustments toward improvements to the methodology. Recommendations currently consider a 12-month data collection regime to determine pre-project/intervention efficiency ratios which consider daily/seasonal variations should these variations be significant. This is one of the first such requests to be made to the UNFCCC panel from a Caribbean state and the results will set the precedent for applying international models to SIDS.

# No One-size Fits All:
## Challenges and Considerations Revealed

These two projects were pivotal in understanding the needs of SIDS when it comes to emission modelling. It revealed the scope of the data requirements to support national emission calculations and the level of multi-agency coordination that is needed for future efforts. It also highlighted that a blanket methodology cannot be applied to all territories and that special care must be taken when considering the national circumstances in smaller islands and methodology design. The usefulness of models and the way in which they can support countries in estimating emissions toward selection of the most appropriate interventions was a useful lesson coming out of the work with the two target countries. In the case of St. Vincent and the Grenadines, the TRIGGER tool allowed country actions to be supported and improvements in calculations as data collection processes are improved. Here are a few challenges and considerations for contemplation, prior to recording baseline calculations in SIDS:

## Challenges:



Several data gaps were identified in existing data and specific information required for the model was challenging to collect (SVG)

Vehicle efficiency factors were based on European data and did not account for differences in terrain which is mountainous (SVG)

Data collection was challenging as required information was spread across several departments with responsibilities for various aspects of the national water portfolio e.g. National Water Commission, National Irrigation Commission etc. (JAM)

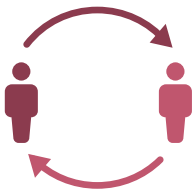
Elements of the most appropriate CDM methodology posed challenges when assessed for its suitability to be used. Sampling regimes were too general and the current boundaries for the calculations too granular for SIDS (municipal vs. national) (JAM)

## Considerations:

Emission models are valuable tools for countries challenged with data gaps in facilitating emission estimations/ calculations (SVG)

The current TrIGGER tool is a simple but effective tool allowing countries to improve accuracy and robustness of calculations as more data is collected (SVG)

Despite the robust and sound nature of CDM methodologies, in some cases there may be room for improvement and channels exists for countries to request recommendations for changes to improve calculations (JAM)



SIDS may need to collaborate to develop specific models given their unique situation (SVG/JAM)

A one-size fits all model may not work for all territories and are often built on data from larger developed countries. Efficiency factors and emission calculations need to adequately consider the country context (JAM/SVG)

**SVG = St. Vincent and the Grenadines**
**JAM = Jamaica**

# The Way Forward:
## Best Practices and Lessons Learnt

**The following best practices were highlighted from the St. Vincent and the Grenadines and Jamaica examples:**

St. Vincent & the Grenadines

Due to the novelty of the TrIGGER Tool used in SIDS, St. Vincent and the Grenadines became the first island within the region to adopt this model. It serves as the current best practice on applying the model to a state, which has data gaps.

**The lessons learnt are that:**

- Substantial data is still required to support emission modelling even if assumptions are utilised to address some gaps
- The model is a useful tool for initiating a national vehicle inventory to support emission calculations and the selection of the most appropriate interventions under the NAMA
- A multiagency effort is needed to support data collection, management and future emissions tracking which may also include the development of a central repository for the collection and assessment of data

Jamaica

Jamaica recognised and acknowledged the challenges of international methodologies and went a step further to provide recommendations for amendment. As the first Caribbean SIDS to do this, the island has set a precedent and provides an excellent example for the region on the importance of assessing existing methodologies and providing feedback to support improvements for the benefits of other territories, particularly SIDS.

**The lessons learnt are that:**

- Blanket use of a methodology is not always the best approach particularly for SIDS
- Caribbean territories can advocate for themselves and other SIDS

**UNFCCC Facilitators, Janak Shrestha, Eduardo Penteado, Cardoso Filho and Daniel Galvan Perez and workshop participants for the SBL Training for the Transport Sector in Kingstown, St. Vincent after successful completion of the training event. Several agencies were represented at this event including BRAGSA, the Ministries of Transport, Trade and Finance, the RSVG Police Force, Customs Inland Revenue and VINLEC.**

# Final Thoughts

While there were several challenges in emission and standardised baseline calculations for these two countries, these setbacks were essential to pave the way forward for establishing accurate baselines in the Caribbean.

**These baselines are crucial for an understanding of the national contribution of SIDS to international GHG emissions and support the work of regional territories in their efforts to combat climate change.**