



# FINAL REPORT

For the Perez-Guerrero Trust Fund for South-South Cooperation funded Project

Title: Interregional Training in Legal Metrology in CARICOM

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Version: Final

**CARICOM Regional Organisation for Standards and Quality (CROSQ)**

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## 1.1 Project Context

In 2008 a survey was conducted by CROSQ with funding from the Physikalisch-Technische Bundesanstalt (PTB), the German Metrology Institute and this survey found that there was a lack of capacity within CARICOM member states to fulfill regional legal metrology functions and meet the demands of industry clients due to a lack of equipment and capacity in key metrology areas. As it relates to legal metrology, all the CARICOM member states need to have the capacity to provide legal metrology services to ensure equity in trade. Although in a few instances legal metrology services are being offered by some member states, the survey highlighted that there is a serious weakness in this area. It will therefore be critical to develop the ability of all member states to offer at least the basic legal metrology services.

In an attempt to address the needs of the region a three-fold approach was proposed:

1. Regional training workshop for core personnel
2. Individual interventions on a needs-basis.
3. Development of a legal metrology database and capability profile of member states

## 1.2 Project Summary

It was the overall objective of this project to support the strengthening of the legal metrology infrastructure within the CARICOM region. The project was financed by the Perez-Guerrero Trust Fund for South-South Cooperation and implemented by the CROSQ Secretariat. The team working on this project consisted of Mr. David Tomlinson (Technical Officer of Metrology), Dr. Michael Seepersaud (IDB Project Manager) and Mr. Deenish Maharaj (Regional Technical Support Coordinator). The project activities comprised of two (2) regional workshops in legal metrology and three (3) individual interventions.

## 3.0 Project Activities

### 3.1 Legal Metrology Workshops

At the beginning of the implementation of this project, all CARICOM member states were asked to identify possible areas in legal metrology that could be the topic of focus for the training workshop. Based on feedback from the member states it seen that there was a high demand for two (2) topics, the verification of domestic potable water meters and the verification of domestic electricity meters. In an attempt to try to make a bigger impact with a single training activity it was decided that two (2) workshops would be facilitated by the project. These two projects would be hosted at the same location and one workshop will immediately follow the next.

The National Standards Bureaus (NSBs) in Guyana and Jamaica were identified as the only two possible venues based on the availability of the required test equipment. It was decided that Guyana would be the ideal host based on lower airfares and lower costs to host the activity. It was also seen as an opportunity for the Guyana National Bureau of Standards (GNBS) to improve their procedures through consultation with the workshops facilitators. The GNBS was offered the opportunity to host the workshop to which they kindly consented.

The first training workshop was on the verification of domestic water meters and was held on May 17 & 18 while the second workshop on the verification of domestic electricity meters immediately followed on May 19 & 20, 2011. The lectures and presentation components of both workshops were hosted at the Grand Coastal Inn Hotel while the practical sessions were hosted at the GNBS. The first workshop was facilitated by Mr. Vitor Neves Hartmann and the second workshop was facilitated by Dr. Juan Carlos Mateus Sanchez, both from the National Institute of Metrology, Standardization and Industrial Quality (INMETRO), Brazil. The facilitators took a similar approach by presenting the theory on the first day of the workshop and then spend the second day in the laboratory at the GNBS conducting practical exercises.

Mr. Vitor Neves Hartmann focused on the theoretical aspects of type approval and verification of domestic potable water meters. This included an examination and explanation of various aspects of the International Organisation for Legal Metrology (OIML) Recommendation R-49. The application of this document to the Brazilian situation along with the challenges encountered by INMETRO were also presented.

The second day of the workshop focused on the practical aspect of the verification of water meters and the Guyana National Bureau of Standards (GNBS) made their water meter test facility available for these working exercises.

Dr. Sanchez began the third day explaining the basic theoretical principles guiding the operation of electricity meters and how electricity meters are constructed. He then explained key components of the verification process including in-field verifications, the equipment used and the role of INMETRO in the process within the Brazilian context. Dr. Sanchez then shared some of the experiences and challenges of INMETRO in the process of electricity meter verification and invited the participants to share their own experiences.

On day four, Dr. Sanchez divided the participants into two groups and supervised exercises in which the participants verified a number of meters contributed by the Guyana Light and Power Company.

Through the support from the Inter-American Metrology System (SIM), both of the facilitators spent four (4) days in Guyana although they were only required to lecture for two (2) days each. This presented them with two (2) extra days each which were spent giving private consultancy to

GNBS in setting up and operating the new test equipment they received for the verification of water and electricity meters. Many issues and unresolved questions were answered and methods developed to allow the GNBS to begin conducting verification exercises or improve the current method of conduct verification exercises. In addition, recommendations were made for upgrades to the equipment with particular emphasis on the water meter test bench.

### **3.2 Intervention in the Federation of St. Kitts and Nevis**

Contrary to the previous report which stated that this intervention was in the planning phase, this activity was completed from March 7-11, 2011. The date of this activity was planned based on the availability of the St. Kitts and Nevis Bureau of Standards (SKNBS) and the consultant. Due to the delay in the transfer of the funds for the implementation of the PGTF project, CROSQ covered the entire cost of this intervention with the intention of recovering the budgeted counterpart once the funds were transferred.

The objective of this mission to St Kitts and Nevis was two-fold:

1. To build awareness of Quality Infrastructure, highlighting Metrology and Calibration, while emphasizing the importance of traceable verification and calibration to the continued success of Small and Medium Enterprises (SMEs). The major activity was a two- day workshop on “Introduction to Metrology and Calibration” for Metrology users, mainly SMEs.
2. To respond to a request to the CROSQ Secretariat from the St Kitts and Nevis Bureau of Standards (SKNBS), for assistance in setting up its mass laboratory and expanding its other services.

On March 7, 2011, the consultant met with the Director (Ag.) and Chemist/Metrology officer, of the SKNBS and held discussions with regard to final planning and logistics for the two-day metrology workshop.

The workshop held on March 8 & 9, 2011 was facilitated by a consultant provided by CROSQ, and the aim of the workshop was to build awareness of the services offered by the SKNBS, the need for proper measurements and traceability in trade. The workshop also highlighted/identified resources and techniques SMEs can use to identify their critical measurements with a view to improve the accuracies.

On the first day the Director (Ag.) presented the “Current Status of Metrology in Saint Kitts and Nevis” to the participants. This included highlighting the legal metrology and chemical testing services presently being offered and new areas that would be developed in the near future. The consultant then presented on the following topics:

- Introduction to Quality Infrastructure
- Introduction to Metrology and Calibration
- Metrology Support to SMEs (National and Regional)

On the second day, the Measurement Tool Kit<sup>1</sup> was introduced after recapping the most important learning of the previous day. The aim of the tool kit is to assist SMEs in improving their measurements capabilities.

In the afternoon the participants were arranged in working groups to use the tool kit in a practical exercise. They had to identify and use one of the organization from which a group member worked as the example and complete the toolkit assessment. Each working group had to present their results at the end of the exercise

The other two days 10<sup>th</sup> & 11<sup>th</sup> March 2011 were spent working with the Bureaus' staff on the development of the SKNBS's metrology capacity and capabilities especially as it relates to mass metrology.

### 3.3 Intervention in Belize

Early in 2011, the Belize Bureau of Standards (BBS) made a formal request to CROSQ for assistance in assessing the volume measurement system within the country. The specific areas of attention were the fuel importation and distribution system. As a result of the national priority given to this issue, CROSQ thought it prudent and cost effective to not only conduct a training activity but to first do an assessment of the system and share this with the stakeholders while at the same time building up the technical capacity of these stakeholders.

The entire intervention was conducted over two (2) weeks from June 13 to 24, 2011 and was supported in country by the BBS. The activities executed over this time were:

1. Formal discussions with the staff of the BBS
2. Open forum with the key stakeholders such as petroleum producers, importers, distributors and retailers.
3. An assessment of the system from receipt to distribution to the consumer.
4. Workshop with the stakeholders to discuss the findings and proposed solutions
5. Workshop on volume calibration and verification for stakeholders

On June 14, 2011 the first stakeholder meeting was held and the objective was to inform the stakeholders of the intervention, garner their support and document their concerns. The key areas of concern identified were:

- The calibration of provers used by the service companies
- Importation and local blending of petroleum products
- Identification of the quality of petroleum products
- The development of a national standard for the quality of petroleum products
- Testing of tanks for leaks and the rationale for placing petroleum tanks underground
- The analysis of fuel conducted by the BBS

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<sup>1</sup> The Measurement Tool Kit is an assessment tool developed in South Africa to assist SME's to identify the critical measurement required in their operations. It has been a valuable tool in the South African and other African economies and is now being tested in our region.

- Reason for sampling fuel only at the retail level
- Awareness of verification exercise performed by BBS
- Integrity of the seals and sealing method used by BBS
- Training and certification of service technicians
- Approach used by BBS personnel

After this meeting, the consultant developed an assessment plan of action and executed this on June 15-17 & 20, 2011. The assessment was done in the following locations:

- Belmopan
- Belize City
- Orange Walk
- Dangriga
- Spanish Lookout

During the assessment, the following organisations were visited:

- The Petroleum Importers - ESSO & Midway
- Service Stations- both company & privately owned (15)
- Service and Supply company(1)
- Calibration Companies (2)
- A distiller of crude oil - Shipyard (1)
- National Oil Company (Spanish Look-out)

On June 22 & 23, 2011 a volume metrology workshop was conducted to assist in developing the technical capacity of the key stakeholders that have been involved in this process. In attendance at the workshop were forty-nine (49) participants from various industries in the petroleum sector. The workshop was facilitated by a regional expert in the area of volume metrology provided by the Bureau of Standards Jamaica. The first day was spent focusing on laboratory volume standards while the second day focused on the calibration of volume test measures and provers. In addition to presenting the theory, the participants were given the opportunity to perform calibrations of the provers including the relevant calculations.

A final workshop was held with the stakeholders on June 24, 2011 to present the findings of the assessment as well as proposed remedial actions. In attendance at this final workshop were thirteen persons (13) representing the key stakeholders. In addition to the findings the participants discussed:

- The publishing of future results by the BBS
- Public awareness campaign to educate consumers on the purpose of the verification process
- The adjustment of fuel pumps
- The calibration of volume provers by the BBS

The entire intervention was viewed as a success and there are now subsequent activities being planned by the BBS and CROSQ to further develop the capacity of the BBS.

### 3.4 Dominican Intervention

The DBOS is presently in the development stage of positioning itself to better support the needs of the Dominican industry and the National Export Strategy. One demand that was identified as necessary for national development was the verification/calibration of fuel bulk flow meters at the terminals. In April 2011, the Dominica Bureau of Standards (DBOS) inform CROSQ of an offer by a Government partner to fund the purchase of a volumetric master meter. The DBOS also requested CROSQ's assistance with providing technical assistance with developing a Terms of Reference (TOR) for the procurement of this master meter. This TOR was completed and a few months after the DBOS informed CROSQ that it had received the master meter to be used as a standard for the calibration of bulk fuel.

Since the DBOS has never offered this service, CROSQ realised that they would require training in the calibration of bulk meters in order to offer this legal metrology service. Through support from this project it was proposed that a training internship at a larger CARICOM metrology institute be provided in the verification of bulk fuel meters. The intervention placed two (2) metrologists at the Guyana National Bureau of Standards (GNBS) from December 13<sup>th</sup> to 16<sup>th</sup>, 2011. The Dominican metrologists that were trained were Mr. Simon Nyaaba and Mr. Kyle Kerby-Gordon.

The first day of the internship was solely theoretical via power point presentations and flipcharts at the GNBS with focus on the different methods of bulk flow meter verifications, calculation of the various parameters involved and the correct use of the American Petroleum Institute (API) tables.

The second and third days involved verification of GNBS's master meter at the Sol Terminal using the standard volume prover and verification of flow meters at Guy Oil Terminal using the prover respectively. Verification exercises of day 3 were mainly performed by trainees with minimal supervision of Senior Inspectors/facilitators of GNBS.

Day four was dedicated to the review and evaluation of the training, verification procedures, clarification of questions/doubts, meetings with Head of Metrology and Compliance Unit, Director of GNBS and the issuance of certificates.

Based on the internship the following recommendations were made to the DBOS:

- The DBOS must procure the required personal protective equipment (PPE) for verification of bulk flow meters such as helmets, protective shoes, gloves and goggles.
- The DBOS should procure the appropriate thermometers, and accessories such as wire seals while they await the delivery of their standard volume prover
- The DBOS should explore the possibility of one of the facilitators from the GNBS overseeing the first verification activity in Dominica.

The intervention was viewed as a resounding success with the results not being limited to an increase in knowledge by the DBOS but also establishing good relationships between the GNBS and DBOS. The DBOS was particularly impressed by the knowledge of the GNBS facilitators and their willingness to openly share all the information they had and their lessons learned.



## 4.0 Impact of the PGTF Project on Regional Development and Cooperation

In order to utilise the limited resources available in the Caribbean region to provide quality services that facilitate trade, CROSQ is focused on the development a Regional Quality Infrastructure. Central to this model is developing all Member States to respond to the national demand for quality services while supporting the larger Member States who by virtue of having a greater demand can in turn support the smaller Member States for services that have no sustainable demand in country. Of all the areas of Quality Infrastructure (QI), the area that has the most direct impact on the average Caribbean person is legal metrology and the development of technical capacity in this area was the project's direct aim. From CROSQ's viewpoint this project was seen as a tool to make a direct response to the needs of the Member States and the focus was placed on those Member States that by virtue of size or economic development are lagging behind the others in offering QI services. Although this project was of a smaller monetary value than the other projects that CROSQ manages or coordinates, one significant feature that made it highly successful was that it allowed for individual interventions in Member States. Since most of the projects require a regional approach and generally allow little scope for CROSQ to focus on one Member State for specialized attention this project complimented the other projects in ways that CROSQ would have found difficult otherwise.

In addition to developing technical capacity, there were significant benefits that CROSQ and the Member States are presently seeing. One of the most direct benefits to CROSQ is a strengthening of the relationship between CROSQ and Member States. Although the relationship between CROSQ and Member States is very good at the moment, the ability to quickly address a Member State's needs reinforced the relevance of CROSQ and saw Member States reaffirming their commitment to the mission of CROSQ. Two Member States who have made a clear demonstration of this commitment are Belize and Dominica whose contact with CROSQ and participation in CROSQ activities has increased since the interventions were made in their country.

The level of specialization of some other CROSQ projects means that technical experts must be brought in from other regions to support the training workshops and consultancies. This can be expensive and as resources are limited it questions the sustainability of continuing to operate in this manner. In implementing this project it was decided that the Member States with more advanced capabilities would be used to support the other Member States. By using personnel from the Member States to conduct the trainings and consultancies this developed their confidence, technical knowledge and ability to train others and transfer knowledge. The ultimate aim of CROSQ as it relates to these individuals is to have their abilities developed to the point of being recognised as experts on an international level. The other benefit of using regional personnel was an improvement in the relationship between Member States which in turn allows for great knowledge transfer and work sharing in fulfillment of CARICOM's goal of regional integration and harmonisation.

On a technical level, the activities conducted have seen results that have been encouraging to CROSQ. As a result of the first training in Guyana and the related consultancy provided by the experts from Brazil, the Guyana National Bureau of Standards has begun to implement some of the recommendations. The focus of the GNBS has been to develop their capacity in Electrical Meter Verification and activities have been planned in conjunction with the Bureau of Standards Jamaica. This includes the calibration of the GNBS's equipment and training internships in Jamaica. In Belize, the activities conducted with the Petroleum sector have increased the awareness of the need for Governmental support for the Bureau of Standards. This has resulted in an increase in the commitment of that Government and now the Belize Bureau of Standards is forging ahead with the construction of a new facility to house the metrology laboratories, equipment purchases and plans for increased staffing.

## 5.0 Future Development Activities in Legal Metrology

As a regional organisation, CROSQ will continue with its mission of developing a Regional Quality Infrastructure which is sustainable and meets the demands of all CARICOM Member States. In many Member States the area of metrology that gets the most support from consumers is legal metrology as this directly affects day to day life, however in many Member States the necessary systems have not been developed to effectively meet the national demand. In this regard CROSQ saw it fit to support CARIMET, the Caribbean sub region of the Inter-American Metrology System, in forming a Legal Metrology Working Group through which the national experts in legal metrology could work together to address issues of regional importance. The primary focus of this group will be the addressing the limited or absent legislative support in many countries. Through the support of our partners, CROSQ will continue supporting the Legal Metrology Working Group of CARIMET in the review of regional metrology laws and the development of a base document that may be used by all Member States.

While supporting the legislative process CROSQ will continue to seek support for the activities in Member States with a demonstrated demand. This will primarily be done through the Legal Metrology Working Group however; one area that CROSQ has received an increasing number of requests from Member States is the verification of sphygmomanometers. In order to meet this demand CROSQ is currently developing a plan that includes the purchase of equipment, training, internships and public awareness campaigns. Support to operationalise this plan will be sought through our many partners.

The other area of focus is on the Member States with less developed legal metrology structures such as Haiti, Belize, Dominica and additionally the Dominican Republic through the framework of CARIFORUM and the Economic Partnership Agreement (EPA). Due to the steady increase in fuel prices and the impact this has on the environment, economic development and consumers, one primary area of focus for the Member States is to continue on the work done in the specific area of calibration and verification of metering devices related to the trade of petroleum products. Belize has received a substantial amount of guidance on this matter but has only recently received the Government support and will now need the equipment, further training and human resources to effectively address the issues related to the quality and storage of Liquefied Petroleum Gas (LPG) and also the verification of flow meters used in the Petroleum trade. In Haiti, the Ministry of Commerce and Industry who has direct responsibility for the development of a National Quality Infrastructure has received renewed support from the Government to move ahead with developing a national programme for the verification of fuel dispensers and fuel quality. A relationship has already been established between Haiti and Jamaica to provide guidance and training in this area. In addition, through the European Union (EU), the United Nations Stabilization Mission in Haiti (MINUSTAH) and the United Nations Industrial Development Organisation (UNIDO) support is being received to build up all areas of quality in Haiti and further support in the specific area of legal metrology will be explored.



## 6.0 Financial Information

Type	Date	Num	Name	Memo	Amount
Check	04/26/2011	Letter	FirstCarribbean International Bank	50% down payment on Grand Coastal Hotel for SIM Meeting	3,865.42
Check	05/10/2011	2068	Chief Immigration Officer	Multiple entry visa for Luis Pena to pass through Barbados to Guyana to attend SIM LMWG	200.00
Check	05/13/2011	Letter	FirstCarribbean International Bank	Per-diem for participants of SIM LMWG Workshop	6,370.00
Check	05/13/2011	DRAFT	FirstCarribbean International Bank	Draft for Grand Coastal resort for SIM LMWG	2,624.10
Bill	05/16/2011	43	Voyages Exclusif	Transportation for participants of the SIM LMWG Workshop	75.00
Bill	05/16/2011	21885	Blue Horizon Hotel	Accommodation for Juan Pena overnight in Barbados	96.01
Deposit	05/27/2011	39		Returned funds from SIM LMWG	-144.20
Check	06/10/2011	2089	David Tomlinson*	Visa cost for Juan Pena entry Guyana SIM LMWG	140.00
Check	06/10/2011	2090	Russell Franklyn*	Reimbursement of per-diem advance for Joel Andrew (APUA to reimburse)	182.00
Deposit General	06/21/2011	599765		Reimbursement of expenses for Antigua light & power representative at SIM LMWG	-385.58
Journal	06/29/2011	250		Bank charge on negotiation of check from Grand Coastal resort refund for SIM LMWG	27.88
Check	07/14/2011	2117	IDB-RQI Project	Counterpart funding for Belize intervention from PGTF	5,340.00
Check	08/11/2011	2134	IDB-RQI Project	Transposition error on chq# 2117	90.00
Bill	09/01/2011	CROSQ/IDB-MIF Project	IDB-RQI Project	Refund due to RQI Project for St. Kitts Intervention	1,540.00
Check	12/09/2011	CQ/2011/410	Cash	Per Diem for Mr. Simon Nyaaba & Mr. Kyle Gordon PGTF Legal Metrology Project to Guyana	1,780.00
Bill	12/10/2011	84614	D.M.A Value Vacations	Travel for Kyle Gordon and Simon Nyaaba to attend PGTF Legal Metrology Meeting in Guyana	1,364.32
					<u>23,164.95</u>
					23,164.95

## Annex 1: List of Participants

Verification of Water Meters  
Georgetown, Guyana  
17 & 18 May 2011

	<b>Participant</b>	<b>Organisation</b>	<b>Email</b>
1	Alan Michael	Antigua and Barbuda Bureau of Standards	alan.michael@antigua.gov.ag
2	Joel Andrew	Antigua and Barbuda Bureau of Standards	
3	Caroline Ingram	Department of Commerce & Consumer Affairs M.E.T.I.C. (Barbados)	
4	Simon Nyaaba	Dominica Bureau of Standards	snyaaba@dominicanstandards.org
5	Juan Lewis Pena	DIGENOR	
6	Robert Medford	Grenada Bureau of Standards	robert_medford@spiceisle.com
7	Franklyn Connor	St. Kitts & Nevis Bureau of Standards	
8	Chamblin Jean Fritz	Ministry of Commerce and Industry, Haiti	monordecivil@hotmail.com
9	Dave Elliston	Bureau of Standards Jamaica	JGordon@bsj.org.jm
10	Anselm Gittens	St. Lucia Bureau of Standards	a.gittens@slbs.org
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13	Wade Inglesbirth	Trinidad and Tobago Bureau of Standards	theodore.Reddock@ttbs.org.tt
14	David Tomlinson	CROSQ Secretariat	david.tomlinson@crosq.org
15	Keemo Fyffe	Guyana National Bureau of Standards	
16	Andrew Kertzious	Guyana National Bureau of Standards	
17	Dillon Beckles	Guyana National Bureau of Standards	
18	Lorenzo Gill	Guyana National Bureau of Standards	
19	Rondell Henry	Guyana National Bureau of Standards	
20	Quincy Gibson	Guyana National Bureau of Standards	
21	Vitor Neves Hartmann	INMETRO	
22	Juan Carlos Mateus Sanchez	INMETRO	

## Annex 2: List of Participants

Verification of Electricity Meters  
Georgetown, Guyana  
19 & 20 May 2011

	<b>Participant</b>	<b>Organisation</b>	<b>Email</b>
1	Alan Michael	Antigua and Barbuda Bureau of Standards	alan.michael@antigua.gov.ag
2	Steadroy Roach	Antigua and Barbuda Bureau of Standards	
3	Caroline Ingram	Department of Commerce & Consumer Affairs M.E.T.I.C. (Barbados)	
4	Simon Nyaaba	Dominica Bureau of Standards	snyaaba@dominicanstandards.org
5	Juan Lewis Pena	DIGENOR	
6	Robert Medford	Grenada Bureau of Standards	robert_medford@spiceisle.com
7	Franklyn Connor	St. Kitts & Nevis Bureau of Standards	
8	Chamblin Jean Fritz	Ministry of Commerce and Industry, Haiti	monordecivil@hotmail.com
9	James Samuels	Bureau of Standards Jamaica	JGordon@bsj.org.jm
10	Anselm Gittens	St. Lucia Bureau of Standards	a.gittens@slbs.org
11	Keni Dasilva	St. Vincent and the Grenadines Bureau of Standards	keni_das@hotmail.com
12	Candy Kartopawiro	Suriname Bureau of Standards	m.pawirodinomo@ssb.sr
13	Wade Inglesbirth	Trinidad and Tobago Bureau of Standards	theodore.Reddock@ttbs.org.tt
14	David Tomlinson	CROSQ Secretariat	david.tomlinson@crosq.org
15	Keemo Fyffe	Guyana National Bureau of Standards	
16	Andrew Kertzious	Guyana National Bureau of Standards	
17	Dillon Beckles	Guyana National Bureau of Standards	
18	Lorenzo Gill	Guyana National Bureau of Standards	
19	Rondell Henry	Guyana National Bureau of Standards	
20	Quincy Gibson	Guyana National Bureau of Standards	
21	Vitor Neves Hartmann	INMETRO	
22	Juan Carlos Mateus Sanchez	INMETRO	

### Annex 3: List of Participants

Introduction to Metrology and Calibration for Industries/ SMEs  
 Basseterre, St. Kitts  
 8 & 9 March 2011

	Participant	Organisation	Phone	Email
1	Ronald Thomas	Agriculture Department	763-2024	
2	Ann Lee	Taiwan Technical Mission		
3	Dareq Maynard	St. Christopher Air & Sea Port Authority		
4	Michael Garnette	DDL/CSR	465-8233/668-1262	<a href="mailto:c.s.r@sisterisles.kn">c.s.r@sisterisles.kn</a>
5	Olvis Dyer	Agro Processors Nevis	469-5350/6637783	<a href="mailto:donnettedyer@yahoo.com">donnettedyer@yahoo.com</a>
6	Cecile B. Daniel	Agro Processors Nevis	469-8154	<a href="mailto:dedaniel49@hotmail.co.uk">dedaniel49@hotmail.co.uk</a>
7	Dwight Mc Koy	St. Kitts Masonry Products	662-5721/465-8664	<a href="mailto:skmptdc@gmail.com">skmptdc@gmail.com</a>
8	Sheila Harris	Agro Processors St. Kitts	465-2357/668-5046	<a href="mailto:shlhrrs@yahoo.com">shlhrrs@yahoo.com</a>
9	Yvette Wallace	Agro Processors St. Kitts	465-9379/668-3204	<a href="mailto:yvesie@hotmail.com">yvesie@hotmail.com</a>
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13	Olawale Momoh	Kajola Kristada Ltd	762-5167	<a href="mailto:omoh@ppc-online.com">omoh@ppc-online.com</a>
14	Tamika Bassue	St. Kitts Bottling Co Ltd	664-7964	<a href="mailto:tamkea.bassure@hotmail.com">tamkea.bassure@hotmail.com</a>
15	Ganesan Sathish Kumar	Sun Island Clothing	763-3685	<a href="mailto:gvsk80@hotmail.com">gvsk80@hotmail.com</a>
16	Jermine Mike	St. Kitts-Nevis Bureau of Standards	465-5279	<a href="mailto:jerminemike@gmail.com">jerminemike@gmail.com</a>
17	Franklyn Connor	St. Kitts-Nevis Bureau of Standards	465-5279	<a href="mailto:f.connor89@gmail.com">f.connor89@gmail.com</a>
18	I-Ronn Audain	St. Kitts-Nevis Bureau of Standards	465-5279	
19	Hiram Williams	St. Kitts-Nevis Bureau of Standards	465-5279	<a href="mailto:mplbos@gmail.com">mplbos@gmail.com</a>
20	Theresia Douglas-Irish	C&C Superfoods Ltd	465-5009/764-2293	<a href="mailto:theresiadouglas-3@hotmail.com">theresiadouglas-3@hotmail.com</a>
21	Sheldon Rawlins	Island Purify Water Ltd	466-7375	<a href="mailto:ching-ching60@hotmail.com">ching-ching60@hotmail.com</a>
22	Elmond Sharry	Carib Brewery (St. Kitts & Nevis Ltd)	662-7041	<a href="mailto:elmondoes@hotmail.com">elmondoes@hotmail.com</a>
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## Annex 4: List of Participants

Petroleum Stakeholders Meeting  
Belize City, Belize

14 June 2011

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## Annex 5: List of Participants

Glassware & Prover Calibration Workshop  
Belize City, Belize  
22 & 23 June 2011

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