“Development of methodologies for the analysis of the composition of biogas, viability study of its reference material production, dissemination support through countries of South America and Central America in order to develop a renewable confident source of energy measurement”

Report

Regular Reporting on Subproject Progress

Reporting period: 2nd Semester 2016

Report No: 01

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1. **INTRODUCTION**

The increase of the prices and demands of energy, the stronger worries about the environmental impacts caused by fossil fuels, as well as the government incentives to increase the use of alternative sources of energy, promote a higher interest in renewable energies.

In particular, the biofuels are presented as an option to the fossil fuels and based on this, the production of different biofuels has been studied on a large scale, such as the bio-oil, bio-hydrogen and biogas.

The raw material used in the production of biogas is of organic origin, using materials such as manure (human and animal), and straw, bagasse and crop residues on harvesting deposited landfill. This renewable energy source can be used as: electricity, vapor, fuel to boilers and stoves with quality gas.

In countries like Germany, China and India, among others, the biogas is already used in the energetic matrix. The need for reliable measurement results from biogas composition is well recognized within the Andean economies. The identified needs are common to countries like Mexico, Peru, Bolivia, Colombia, Argentina and Brazil.

This project objective is the improvement and assurance of the quality measurements for Biogas produced in Latin and Central America countries. In order to provide tools to guarantee the reliability of quality measurements of biogas, this project aims to develop and validate new methodologies by different chromatographic techniques for the characterization and quantification of the major components of biogas, as well as develop a viability study for the production of certified reference material of biogas.

2. **PERFORMED ACTIVITIES**

1. 1o. meeting using the CENTRA: 08 /September / 2016
   Description: Introduction project meeting
   No. of participants: 4 participants - Angelika Koenig (PTB), Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto (INMETRO) and Andreia Floravante (INMETRO)
   Time: 1,5 h
   Achievements: present the information about the project, present the personal involved on the PTB projects and to define the next meeting with all Biogas project participants.

2. 1o. meeting using SKYPE: 21 / September / 2016
   Description: Meeting to do the action plan revision
   No. of participants: 3 participants - Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto (INMETRO), Andreia Floravante(INMETRO)
   Time: 1 h
   Achievements: define the schedule of the meeting with all the project participants that was scheduled to 07/Oct/2016 and to revision the action plan because the first step described on the original plan was predict to begin on June/2016. So, the action plan needs to be revised.

3. Cristiane Rodrigues Augusto (INMETRO) and Beatriz Paniagua (iKZE) revise the action plan – 21 / September / 2016 – describing that the first step begins on October/2016.

4. Cristiane Rodrigues Augusto (INMETRO) prepare a survey draft to request NMI participants information and determine the capability and traceability in the Biogas major components
measurements by each NMI participant and send the survey draft to all the NMI participants: 05/October/2016

5. 2o. meeting using the CENTRA: 07/October/2016
   Description: Meeting with all the project participants to present the activities and the action plan revised
   No. of participants: 9 participants - Angelika Koenig (PTB), Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto Coordinadora de subproyecto (INMETRO-Brasil), Andreia Floravante (INMETRO-Brasil), Adriana Rosso (INTI-Argentina), Daniel Valdez (INTI-Argentina), Andrea Chamorro (INTI-Argentina), (Mabel Delgado (IBMETRO-Bolivia), Jorge Koelliker (CENAM-México)
   Time: 1 h
   Achievements: confirm the focal point to each NMI participant, present the action plan to the NMI participants, and present a draft document (survey) that all the participants should fill to identification the common Biogas Analysis demands between NMI participants and them send it to the coordinator and present a proposal to have a meeting on Bolivia.

6. Cristiane Rodrigues Augusto (INMETRO) receive suggestions to modify the survey draft and prepare the final document (survey) to request NMI participants information and determine the capability and traceability in the Biogas major components measurements by each NMI participant and send the final document (survey) to all the NMI participants: 18/October/2016

7. Cristiane Rodrigues Augusto (INMETRO) prepare the draft of the agenda of the Bolivia meeting and send it to Angelika Koenig (PTB) and Beatriz Paniagua (iKZE) – 19/October/2016

8. 3a. meeting using the CENTRA: 20/October/2016
   Description: Meeting with all the project participants to present how to fill the document to identify the common Biogas Analysis demands between NMI participants
   No. of participants: 8 participants - Angelika Koenig (PTB), Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto Coordinadora de subproyecto (INMETRO-Brasil), Andreia Floravante (INMETRO-Brasil), (Mabel Delgado (IBMETRO-Bolivia), Jorge Koelliker (CENAM-México), Daniel Valdes y Andrea Chamorro (INTI) [just for few minutes because of internet]
   Time: 1 h
   Achievements: present the draft of the agenda of the Bolivia meeting and present the document (survey) that all the participants should fill to identification the common Biogas Analysis demands between NMI participants and them send it to the coordinator until December 2016.

9. 2o. meeting using SKYPE: 22/November/2016
   Description: Coordinator Meeting
   No. of participants: 3 participants - Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto (INMETRO), Andreia Floravante(INMETRO)
   Time: 1,5 h
   Achievements: define the agenda of the Bolivia meeting with all the project participants that was scheduled to Feb/2017

10. 4a. meeting using the CENTRA: 16/December/2016
     Description: Meeting with all the project participants to present the agenda of the Bolivia meeting
     No. of participants: 5 participants - Beatriz Paniagua (iKZE), Cristiane Rodrigues Augusto Coordinadora de subproyecto (INMETRO-Brasil), Paola Avendaño (IBMETRO-Bolivia), Jorge Koelliker (CENAM-México), Adriana Rosso (INTI)
     Time: 1 h
Achievements: present the agenda of the Bolivia meeting and confirm with all the NMI participants that they need to send the survey that identify the Biogas Analysis demands to the coordinator until December 2016.

3. IMPLEMENTATION PROGRESS

Report on the progress in implementing the sub-project including Achievements/ Milestones (with regard to Indicators and Objectives); Challenges encountered and lessons learnt, justification for adjustment (if necessary)

The implementation progress of the Biogas project is on time. The original action plan was revised just because the beginning of the project (the first action started on Oct/2016) and first strategy of the action plan is in progress, as described below:

1.1 Develop a survey draft to request information and determine the capability and traceability in these measurements. This survey should be developed for all the participants and to be focused also on activities that are related to Biogas major components measurements – It was done on Oct/2016.

1.2 Gathering the survey information from all participants’ contributions and evaluate the information exchanged. – It was done on Oct/2016.

1.3 Sending the survey to all participants and circulating the final survey to understanding local needs and demand. – It was done on Oct/2016.

1.4 Evaluate the information obtained by the NMI survey: identification of methods of analysis in the region; share information among participants to know their calibration and measurements capabilities, methods used. Cristiane will prepare a report and will circulate among the participants and it will to be discussing in the Bolivia meeting – Jan/2017.

1.5 Prepare the final list of participants in the meeting and the agenda and sending the agenda of the meeting to the NMIs and monitoring of participation (contacts, sending invitations ...) – It was done on Oct/2016.

1.6 Meeting to identify the most common detail demand in the region and in each country – Scheduled to Feb/2017

1.7 Emit a report of meeting describing the most common detail demand in the region and in each country, the capacity of each country to address these needs in order to establish indicators that can be reflected in the project, the NMI ranges of interest on the Biogas measurements, define the reference materials to be provide by PTB Support that will be used on the method validation and order these reference materials to each NMI. – Scheduled to Feb/2017.

4. ADJUSTMENT REQUIRED

The only adjustment required was on the original action plan, because it described that the Project should begin on June/2016. It was revised and the first strategy (1.1) described was scheduled to begin on Oct/2016.
5. NEXT STEPS

Table 1:

<table>
<thead>
<tr>
<th>What?</th>
<th>Who?</th>
<th>When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare a report with the information that all NMI participants send about their capabilities and demands for Biogas analysis</td>
<td>Cristiane Augusto</td>
<td>Jan/2017</td>
</tr>
<tr>
<td>Bolivia Meeting</td>
<td>Cristiane Augusto and Mabel Delgado</td>
<td>Feb/2017</td>
</tr>
<tr>
<td>Emit a Bolivia meeting report</td>
<td>Cristiane Augusto</td>
<td>Feb/2017</td>
</tr>
</tbody>
</table>

ANNEX

Updated Action Plan as annex