“Accurate measurements of Dissolved Oxygen, Phosphorus and Chlorophyll in several aquatic environments for the correct assessment of Biodiversity Monitoring”

Report

Regular Reporting on Subproject Progress

Reporting period: 2nd Semester 2016

Report No: 01

Prepared by
Simone Fajardo
2016-12-21
Abbreviations

IBMETRO - Instituto de Metrología de Bolivia
INACAL - Instituto Nacional de Calidad - Perú
INEN - Servicio Ecuatoriano de Normalización - Ecuador
INTI - Instituto Nacional de Tecnología Industrial - Argentina
LATU - Laboratorio Tecnológico del Uruguay.
NMI - National Metrology Institute
CRM - Certified Reference Materials
RM - Reference Material
DO - Dissolved Oxigen
P – Phosphorus
SI – International System of Units
Content

1. Introduction .........................................................................................................................1
2. Performed Activities ...........................................................................................................1
3. Implementation progress ...................................................................................................1
4. Adjustment required .........................................................................................................2
5. Next Steps ..........................................................................................................................2
Annex ....................................................................................................................................2
1. INTRODUCTION

Measurement of Dissolved oxygen, Phosphorus and Chlorophyll A, in water bodies is an indispensable input when it comes to nature research from a hydrobiological, ecological or environmental protection point of view.

This project seeks to provide necessary tools to improve the measurements of Dissolved oxygen, Phosphorus and Chlorophyll A in water bodies. In this way, the data from the medium and long term sensors will be comparable and traceable to IS. This will be a solid basis for decision-making in environmental policies.

The actions taken based on these measurements directly affect the public, health, economic activity, growing and maintenance of aquatic ecosystems.

2. PERFORMED ACTIVITIES

This project involves five NMIs: LATU, INTI, INEN, IBMETRO and INACAL.

In this period four CENTRA meetings have been realized, in which the needs of each NMI has been detected, as well as the scope of possible implementation in each of the parameters. The equipment and the methodology available and required for each NMI have also been defined.

3. IMPLEMENTATION PROGRESS

For the determination of dissolved oxygen, the technical expert has been defined for the training in the implementation of a methodology of higher metrology hierarchy based on the Winkler method and gravimetric, for the calibration of sensors.

Regarding the determination of chlorophyll A, was found as the first challenge that there is currently no CRM or standard with certain purity; we contacted the NRC who has the necessary equipment to assign purity value to the commercial standard to be used and thus achieve traceability. It proposed with this material to prepare gravimetrically the calibrators to validate the methods of determination of chlorophyll A. Subsequently it proposed to carry out an aptitude test among the participants to assign value to a RM of chlorophyll A in river water. And thus achieve the traceability for the calibration of the sensors to determine Chlorophyll A.

Regarding the determination of phosphorus, it is proposed to develop a RM in river water to be used in the laboratories that perform the determination in this matrix since there are currently no sensors available to measure this parameter.
4. ADJUSTMENT REQUIRED

It is necessary to modify the schedule regarding the first meeting from February to May 2017, because two extra trainings will be carried out in this event.

One of them is a statistical course based on the Guide ISO 35, that will be dictated by INMETRO staff. The course is proposed in May, as the new version of this guide will be approved in April 2017.

In addition there will be a talk about the sampling and type of probes used to determine each parameter, to understand what the users need at the moment of measuring the parameter.

It is also proposed to carry out the technical training for the determination of phosphorus, since LATU has the possibility of working in all the methodologies that have been proposed by the other NMIs.

5. NEXT STEPS

Table 1:

<table>
<thead>
<tr>
<th>What</th>
<th>Who?</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define date of the first personal meeting</td>
<td>NMIs</td>
<td>Next Central meeting, 31 January 2017</td>
</tr>
<tr>
<td>Training in P measurement method</td>
<td>NMIs</td>
<td>May 2017</td>
</tr>
<tr>
<td>Training in DO measurement method and calibration of Do sensors.</td>
<td>NMIs</td>
<td>July 2017</td>
</tr>
<tr>
<td>Training in Chlorophyll A measurement method</td>
<td>NMIs</td>
<td>August 2017</td>
</tr>
</tbody>
</table>

ANNEX
Updated Action Plan as annex