

منظمة
الأغذية والزراعة
للأمم المتحدة

联合国
粮食及
农业组织

Food and Agriculture
Organization of the
United Nations



Organisation des
Nations Unies pour
l'alimentation et
l'agriculture

Продовольственная и
сельскохозяйственная
организация
Объединенных Наций

Organización de las
Naciones Unidas para la
Alimentación y la
Agricultura

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20 JUN 2019

LETTER OF AGREEMENT

Between

the Food and Agriculture Organization of the United Nations ("FAO") and the
Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale", Italy

For provision of
"Laboratory Management of samples Systems"

1. Introduction

The Food and Agriculture Organization of the United Nations (hereinafter referred to as "FAO") and Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" ("IZSAM") (hereinafter referred to as the "Service Provider") (together hereinafter referred to as the "Parties") have agreed that the Service Provider will provide certain services defined in detail in the attached Annex (the "Services"), which forms an integral part of this Letter of Agreement (hereinafter referred to as the "Agreement") in support of the FAO implemented, USAID funded project OSRO/GLO/507/USA that comprises a component aimed at enhancing diagnostic capacity of veterinary laboratories in beneficiary countries and Fleming Fund funded project GCP /GLO/710/UK that comprises a component aimed at enhancing AMR national surveillance system. This LoA is to be intended as a seamless continuum of the previous agreement (PO No. 329618). To enable the Service Provider to provide the Services, FAO will pay the Service Provider a total amount not exceeding *EUR 129 387 (One hundred and twenty nine thousand, three hundred and eighty seven euro)* which represents FAO's maximum financial liability, into the Service Provider's account specified in paragraph 2 below.

2. Detailed Banking Instructions

Bank name: INTESA SAN PAOLO S.p.A.

Bank country and city: ITALY, 64100 TERAMO

Bank branch address: CORSO SAN GIORGIO, 120

SWIFT code: BCITITMM

Account number: 100000046008

Exact bank account holder's name: ISTITUTO ZOOPROFILATTICO SPERIMENTALE ABRUZZO E MOLISE "G. CAPOREALE"

Account currency: Euro

Bank branch code or sort code: BIC code BCITITMM

IBAN number: IT65G0306915303100000046008

3. Designation of the FAO Responsible Officer

Dr Béatrice Mouillé, EMPRES-AH Laboratory Unit Deputy Coordinator, AGAH, FAO, Viale delle Terme di Caracalla 1, 00153 Roma, phone: +39 06 57056299, Beatrice.Mouille@fao.org, is designated the officer responsible for the management of this Agreement ("Responsible Officer") on behalf of FAO.

4. Entry into force and period of validity

The Agreement will enter into force upon the date of signature by the Service Provider, by FAO or on 14 June 2019, (whichever of the three dates is the latest) and will terminate on 31 December 2019.

5. Purpose

a) The purpose for which the funds provided by FAO under this Agreement shall be used are the following:

(i) **Objective.** The Services will contribute to the following Organizational objectives:

- Strategic Objective SO5: Improved preparedness for, and effective response to, food and agricultural threats and emergencies.
- Strategic Objective SO2: Increased sustainable livestock production.

(ii) **Outputs/outcomes.** The Service Provider will produce, achieve or deliver the following outputs or outcomes:

Output/outcome 1. Completion of installation and training for NADDEC laboratory and extend to one other peripheral laboratory in Uganda to strengthen capacity for better sample management and analysis and connection with other systems established.

Output/outcome 2. Support the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center in Tanzania to use SILABFA in order to strengthen capacity for better sample management and analysis and connection with other systems established in TVLA and customization for Epidemiology Unit needs.

Output/outcome 3. Completion of installation in the *Laboratoire Nationale Vétérinaire* (LANAVET) (Garoua and Yaoundé) in Cameroon to strengthen capacity for better sample management and analysis and connection with other systems established and assessment of Epidemiology Unit needs.

Output/outcome 4. Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend to one peripheral laboratory (Herna) in Ethiopia to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Output/outcome 5. Completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend to one new peripheral Laboratory in Kenya to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Output/outcome 6. Completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires* (LNERV) in Senegal to strengthen capacity for better sample

Output/outcome 6. Completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires* (LNERV) in Senegal to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Output/outcome 7. Completion of installation in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville* (LANADA-LCVB) in Côte d'Ivoire to strengthen capacity for better sample management and analysis and connection with other systems established and assessing the needs for the development of a national Animal Health Information System.

Output/outcome 8. Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA.

Output/outcome 9. Development of new Technical Solution for SILABFA including interoperability with other IT systems.

Output/outcome 10. SILABFA and SLIMS customized for AMR including customization for Epidemiology Unit needs.

(iii) **Activities.** The Service Provider will undertake the following activities:

Under Output/outcome 1:

- i. Provide support to extend SILABFA usage to all sections in NADDEC and in one other peripheral laboratory in Uganda.
- ii. Customization of SILABFA to new requirements, provision of maintenance and Helpdesk.
- iii. Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i.

Under Output/outcome 2:

- i. Conduct a backstopping visit for the completion of installation in Tanzania Veterinary Laboratory Agency (TVLA) and Zanzibar Veterinary Investigation Center (VIC)
- ii. Develop the connection solution to ensure the interoperability between SILABFA and FAO-Event Mobile Application (FAO-EMA-i) and assessment of "e-gov" solution, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Tanzania.
- iii. Customization of SILABFA for Data analysis and Epidemiology Unit needs.
- iv. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.

Under Output/outcome 3:

- i. Conduct a backstopping visit for the completion of installation in *Laboratoire Nationale Vétérinaire* (LANAVET) annex of Yaoundé and connection to LANAVET Garoua main server, provide support in using SILAB data for analysis and improvement of the laboratories activities in Cameroon.
- ii. Assessment of Epidemiology Unit needs.
- iii. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.

Under Output/outcome 4:

- i. Conduct a backstopping visit for the completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend the usage of SILABFA in one peripheral laboratory (Herna) in Ethiopia, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Ethiopia.
- ii. Customization of SILABFA for Data analysis and Epidemiology Unit needs.
- iii. Analyse SILABFA interoperability with Ministry of Agriculture surveillance systems (Animal Disease Notification and Investigation System-ADNIS and Disease Occurrence and Vaccination Reporting-DOVAR) and SILABFA customization for Epidemiology Unit needs.
- iv. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.

Under Output/outcome 5:

- i. Conduct a backstopping visit for the completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend the usage of SILABFA in one new peripheral laboratories (either Garissa, or Marikani or Eldoret), provide support in using SILABFA data for analysis and improvement of the laboratories activities in Kenya.
- ii. Customization of SILABFA for Data analysis and Epidemiology Unit needs.
- iii. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.
- iv. Eastern Africa Regional Laboratory Network (EARLN) inter-connection using SILABFA.

Under Output/outcome 6:

- i. Conduct a backstopping visit for the completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires* (LNERV) in Senegal, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Senegal, SILABFA customization for Epidemiology Unit needs.
- ii. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.
- iii. Analysis of technical interoperability of SILABFA with Kobotoolbox.

Under Output/outcome 7:

- iv. Conduct a backstopping visit for the completion of installation in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville* (LANADA-LCVB) in Côte d'Ivoire and SILABFA customization for Epidemiology Unit needs.
 - i. Animal Health Information System: system design assessment.
 - ii. Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.
 - iii. Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i.

Under Output/outcome 8:

- i. Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA: Participation (as a trainer) in regional three days training organized by FAO to train participants on the use of SLIMS.

- ii. Feasibility study to develop a connection solution to ensure the interoperability between SLIMS and FAO-EMA-i.
- iii. Customization of SLIMS to new requirements and provision of maintenance and Helpdesk.

Under Output/outcome 9:

- i. Study of preliminary needs and prerequisites for the development of the connection solution to ensure the interoperability between SILABFA and Laboratory Infrastructure Network Analysis (LINA) (from Sandia National Laboratories) to ensure a linkage and transfer of sample data (and meta-data) between these two systems.

Under Output/outcome 10:

- i. Study of prerequisites and first module design for SILABFA and basic LIMS (SLIMS) customization for AMR including for Epidemiology Unit needs.

- b) A detailed description of the Services including technical and operational requirements, budget, work plan and timeframe, performance indicators and means of verification, as well as inputs to be provided free-of-charge by the Service Provider and FAO, if any, are set out in the Annex.

6. General Conditions

- a) Funds provided by FAO under this Agreement are to be used by the Service Provider exclusively for the provision of the Services in accordance with the budget set out in the Annex. Neither the Service Provider nor its personnel nor any other persons providing the Services on its behalf, will incur any additional commitment or expense on behalf of FAO.
- b) The Service Provider will be responsible for all activities related to the provision of the Services and the acts or omissions of all employees, agents or other representatives, and authorized subcontractors providing the Services on its behalf. FAO will not be held responsible for any accident, illness, loss or damage which may occur during the provision of the Services or any claims, demands, suits, judgements, arising there from, including for any injury to the Service Provider's employees, or to third parties, or any loss of, damage to, or destruction of property of third parties, arising out of or connected to the Service Provider's work or performance under this Agreement.
- c) The Service Provider shall not utilize funds received under this Agreement to subcontract services or procure items except as specifically provided for in the Annex or as specifically approved in writing by FAO. Any subcontracting arrangement shall in no way relieve the Service Provider of the responsibility for the provision/delivery of the Services required under this Agreement. Subcontracts or procurement of the items set forth in the Annex shall be procured in conformity with the Service Provider's own procurement rules and procedures. The Service Provider confirms that its procurement process is transparent and consistent with generally-accepted principles governing public sector procurement to obtain best value for money. The Service Provider will ensure that its agreements with any subcontractor include the obligation to maintain appropriate records for a period of five years and FAO's right to review, audit and have access to all documentation and sites related to the activities carried out in connection with this Agreement.

- d) The Service Provider shall make and thereafter maintain, in compliance with national legislation, provision for adequate insurance to cover such risks as damage to property and injuries to persons, as well as third party liability claims.
- e) The personnel assigned by the Service Provider to provide the Services are not considered in any respect as being employees or agents of FAO. Nothing in this Agreement or in any document or arrangement relating thereto shall be construed as conferring any privileges or immunities of FAO on the Service Provider, its personnel or any other persons providing the Services on its behalf.
- f) Nothing in this Agreement or in any document relating thereto, shall be construed as constituting a waiver of privileges or immunities of FAO, or as its acceptance of the jurisdiction of the courts of any country over disputes arising out of this Agreement.
- g) The present Agreement shall be governed by general principles of law, to the exclusion of any single national system of law. General principles of law shall be deemed to include the UNIDROIT Principles of International Commercial Contracts of 2016.
- h) In providing the Services, the Service Provider shall conform to all national laws applicable to its activities and its relations to third parties, including employees. The Service Provider shall promptly correct any violations thereof and shall keep FAO informed of any conflict or problem arising in relation to national authorities.
- i) The Service Provider shall observe the highest standard of ethics in providing the Services and agrees to adhere to the UN Supplier Code of Conduct, which can be viewed at <https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct>
- j) The Service Provider confirms that it has not engaged in, nor will engage in, any corrupt, fraudulent, collusive, coercive, unethical or obstructive practices in entering into or implementing this Agreement. If FAO determines that the Service Provider has engaged in such practices, it may impose sanctions, including termination of the Agreement, as provided by FAO's Sanctions Procedures (http://www.fao.org/fileadmin/user_upload/procurement/docs/FAO_Vendors_Sanctions_Policy_-_Procedures.pdf). In addition, information on sanctioned Service Providers and other third parties may be shared with other Intergovernmental or UN Organizations. This provision must be included in all subcontracts, sub-agreements or assignments entered into by the Service Provider under this Agreement.
- k) For the purpose of this Agreement, the following terms shall have the following meanings:
 - (i) *"Fraudulent practice" is any act or omission, including misrepresentation that knowingly or recklessly misleads, or attempts to mislead, a party to obtain, financial and/or other benefit and/or to avoid an obligation.*
 - (ii) *"Coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.*

- (iii) *"Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party.*
 - (iv) *"Corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value whether tangible or intangible to improperly influence the actions of another party.*
 - (v) *"Unethical practice" is an act or omission contrary to the conflict of interest, gifts and hospitality or post-employment FAO policy (<http://www.fao.org/unfao/procurement/codedeconduithique/en/>), as well as any provisions or other published requirements of doing business with FAO, including the UN Supplier Code of Conduct; and*
 - (vi) *"Obstructive practice" is an act or omission by the Service Provider or its affiliates, successors or assigns that may prevent or hinder the work of the Investigation Unit of the FAO Office of the Inspector General.*
- l) The Service Provider shall take all reasonable precautions to avoid any conflict of interest in the implementation of the Services and shall inform FAO without delay of any situation constituting or likely to entail a conflict of interest including any FAO personnel having an interest of any kind in the Service Provider's activities.
- m) In order to enter into an agreement with FAO, the Service Provider, and any of its agents or authorized subcontractors, should not be suspended, debarred or otherwise identified as ineligible by any Intergovernmental or UN Organization, including any organization within the World Bank Group or any multi-lateral development bank, or by the institutions and bodies of economic integration organizations (e.g., the European Union). The Service Provider is required to disclose to FAO whether it, or any of its agents or authorized subcontractors, is subject to any sanction or temporary suspension imposed by any such organization or National Authority at any time during the three years prior to this Agreement or at any time throughout the execution of this Agreement. The Service Provider recognizes that a breach of this provision will entitle FAO to terminate its Agreement with the Service Provider immediately upon notice to the Service Provider, without any liability for termination charges or any other liability of any kind of FAO.
- n) Unless authorized in writing by FAO, the Service Provider shall not advertise or otherwise make public that it has a contractual relationship with FAO, nor shall the Service Provider, in any manner whatsoever use the name or emblem of FAO, or any abbreviation of the name of FAO.
- o) Any intellectual property rights including copyright, of material such as publications, software and designs, made available by the Parties to be used in implementing activities under this Agreement will remain with the originating Party. All intellectual property rights, including copyright, in the outputs produced under this Agreement are vested in FAO, including, without any limitations, the right to use, publish, translate, sell or distribute, privately or publicly, any item or part thereof. FAO hereby grants to the Service Provider a non-exclusive royalty-free license to use, publish and distribute the outputs delivered under this Agreement for non-commercial purposes, provided that FAO is acknowledged as the source and copyright owner. Neither the Service Provider nor its personnel will communicate to any other person or entity any confidential information made known to it by FAO nor will they use this

information for private or corporate advantage. This provision will survive the expiration or termination of this Agreement.

- p) To comply with disclosure requirements and enhance transparency, FAO may release and/or publish the following information about this Agreement: (i) the name and nationality of the Service Provider; (ii) a brief description and location of the Services provided; and (iii) the amount of this Agreement. The Service Provider specifically consents to the release and/or publication of such information. FAO will not release or publish information that could reasonably be considered confidential or proprietary.
- q) The Service Provider shall return to FAO any unexpended funds budgeted and paid by FAO under this Agreement.
- r) This Agreement is not subject to payment by FAO of any levies, taxes, registration duties or any other duties or charges whatsoever. The Service Provider shall duly pay taxes, duties and other charges in accordance with prevailing laws and regulations applicable to the Service Provider.
- s) The Service Provider agrees to undertake all reasonable efforts to ensure that none of the funds received from FAO under this Agreement are used to provide support to individuals or entities i) associated with terrorism, as included in the list maintained by the Security Council Committee established pursuant to its Resolutions 1267 (1999) and 1989 (2011) or ii) that are the subject of sanctions or other enforcement measures promulgated by the United Nations Security Council. This provision must be included in all subcontracts, sub-agreements or assignments entered into under this Agreement. The Service Provider acknowledges and agrees that this provision constitutes an essential term of this Agreement and any breach of these obligations and warranties shall entitle FAO to terminate this Agreement immediately upon notice to the Service Provider, without any liability for termination charges or any other liability of any kind of FAO.
- t) The Service Provider shall take all appropriate measures to prevent sexual exploitation or abuse of any beneficiary of the services provided under this Agreement, or to any persons related to such beneficiaries, by its employees or any other persons engaged and controlled by the Service Provider to perform any services under this Agreement. For these purposes, sexual activity with any person less than eighteen years of age shall constitute the sexual exploitation and abuse of such person. In addition, the Service Provider shall refrain from, and shall take all reasonable and appropriate measures to prohibit its employees or other persons engaged and controlled by it from exchanging any money, goods, services, or other things of value, for sexual favours or activities, or from engaging in any sexual activities that are exploitive or degrading to any beneficiary of the services provided under this Agreement or to any persons related to such beneficiaries. The Service Provider acknowledges and agrees that the provisions hereof constitute an essential term of this Agreement and that any breach of these provisions shall entitle the Organization to terminate this Agreement immediately upon notice to the Service Provider, without any liability for termination charges or any other liability of any kind.

7. Reporting and Record Maintenance Requirements

- a) The Service Provider shall submit to the Responsible Officer named in paragraph 3, the Reports listed in the Annex on the dates set forth therein, including a final report consisting of a narrative report and financial report ("Final Report") within 30 days following the

completion of the Services. The Final Report must be sufficiently detailed to allow certification of deliverables and of expenditures. The financial report shall be signed and certified as to its correctness by a duly designated representative of the Service Provider (e.g. executive officer, chief financial officer, chief accountant or similar).

- b) The Service Provider shall keep accurate financial records and maintain supporting documentation showing the utilization of inputs and funds under this Agreement and any other documentation related to the Services for a period of five years following termination or expiry of the Agreement, during which period FAO, or a person designated by FAO, or the relevant auditing authority (e.g. national audit office) shall have the right, at any time, to conduct reviews and/or audits relating to any aspect of this Agreement. The Service Provider shall provide its full and timely cooperation with any such review or audit. Full and timely cooperation shall include, but not be limited to, making available employees or agents and granting to FAO or other designated person or relevant authority, access at reasonable times and conditions to the Service Provider's premises or other sites where documentation related to this Agreement is kept or activities related to this Agreement are carried out.

8. Delays and Termination

- a) The Agreement shall enter into force upon signature by both Parties and shall remain in force until the Services have been satisfactorily provided or until otherwise terminated in accordance with the provisions herein.
- b) The Service Provider will carry out the Services in accordance with the work plan and within the timeframe set forth in the Annex and shall notify FAO of any delays that will prevent delivery of the Services in accordance with the work plan and within the timeframe set forth in the Annex.
- c) FAO may suspend or cancel all or part of this Agreement, obtain the Services elsewhere and make corresponding adjustments to any payments that may be due to the Service Provider, if the Service Provider fails to make delivery, or perform to a standard considered acceptable to FAO. Subject to consultation with the Service Provider, the determination of FAO, relating to this provision, shall be binding.
- d) If at any time during the course of this Agreement it becomes impossible for the parties to perform any of their obligations for reasons of Force Majeure, that party shall promptly notify the other in writing of the existence of such Force Majeure. The party giving notice is thereby relieved from such obligations as long as Force Majeure persists. For the purpose of this Agreement, the term "Force Majeure" shall mean any unforeseeable exceptional situation or event beyond the Parties' control which prevents either of them from fulfilling any of their obligations under this Agreement, was not attributable to error or negligence on their part (or of their personnel, agents, or other representatives, or authorized subcontractors), and proves insurmountable in spite of all due diligence.
- e) FAO shall have the right to terminate this Agreement, by written notice to this effect, if it considers that continued implementation of the Agreement is impossible or impractical:

- (i) for unforeseen causes beyond the control of FAO;
 - (ii) in the event of a default or delay on the part of the Service Provider after written notice by FAO which provides a reasonable period to remedy the default or delay.
- f) In the event of termination as per 8e) above, the following shall apply:
- (i) termination for unforeseen causes beyond its control, FAO shall complete all payments for expenses which have been incurred by the Service Provider up to the effective date of termination.
 - (ii) termination due to the Service Provider's default or delay, the Service Provider shall refund to FAO any payment already received in respect of Services that have not been performed to a standard considered acceptable to FAO.
- g) FAO shall have the right to terminate this Agreement, by written notice to this effect, if FAO establishes in accordance with its administrative procedures:
- (i) irregularities, including any corrupt, fraudulent, collusive, coercive, unethical or obstructive practices in paragraphs 6i)-p) on the part of the Service Provider in relation to this Agreement; or
 - (ii) a breach of the reporting requirements in paragraph 7 above.
- h) In the event of termination as per g) above, the Service Provider shall refund to FAO all payments that were made on the basis of the irregularity or corrupt, fraudulent, collusive, coercive, unethical or obstructive practices, or as otherwise determined by FAO to be equitable and take other action as deemed appropriate by FAO.
9. Terms of Payment
- a) The payments will be made after certification by the Responsible Officer of the request(s) for payment as follows:
- (i) 1st payment not to exceed EUR 38 816 upon signature of the present Agreement;
 - (ii) 2nd payment not to exceed EUR 60 554 upon the submission of the interim Reports detailed under paragraphs 2.4.C, 2.4.E and 2.4.F of the SILAB installation in Ethiopia, Senegal and Côte d'Ivoire. Interim financial report i.e. statement of expenditures is also requested along with the interim narrative report;
 - (iii) 3rd payment not to exceed EUR 4 140 upon submission of report detailed under paragraph 2.4.G.
 - (iv) Final payment not to exceed EUR 25 877 upon acceptance by FAO of the Final Report mentioned under paragraph 7a) above
- b) The payments will be made in the currency stated in paragraph 1, in accordance with the detailed banking instructions provided by the Service Provider and defined in paragraph 2.

- c) The Service Provider shall submit each request for payment to the address indicated below:
Ms Mirela Hasibra, Liaison and Operations Officer, Emergency and Resilience Division (PSE),
FAO, Viale delle Terme di Caracalla 1, 00153 Roma, Office C-650, Phone: +39 06 57056672,
e-mail address: mirela.hasibra@fao.org
- d) FAO enjoys certain privileges and immunities which include exemption from payment of Value Added Tax ("VAT" or "IVA"), customs duties and importation restrictions.
- e) If the Service Provider fails to submit the Final Report mentioned in 7a) above no later than 30 days following completion, expiry or termination of this Agreement, FAO may, after provision of due notice of the default, terminate this Agreement without making the final payment.

1. Settlement of Disputes

- a) Any dispute between the parties arising out of the interpretation or execution of this Agreement, if not settled by negotiation between the parties or by another agreed mode of settlement, shall be submitted at the request of either party, to one conciliator. Should the parties fail to reach agreement on the name of a sole conciliator, each party shall appoint one conciliator. The conciliation shall be carried out in accordance with the Conciliation Rules of the United Nations Commission on International Trade Law, as at present in force.
- b) Any dispute not resolved by conciliation shall, at the request of either party, be settled by arbitration in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law, as at present in force. The arbitral tribunal shall have no authority to award punitive damages. FAO and the Service Provider agree to be bound by any arbitration award rendered in accordance with this article, as the final adjudication of any such dispute.
- c) The parties may request conciliation during the execution of this Agreement and in the period not to exceed twelve months after the completion, expiry or termination of this Agreement. The parties may request arbitration not later than ninety days after the termination of the conciliation proceedings. All dispute resolution proceedings shall be conducted in the language in which the agreement is drafted provided that it is one of the six official languages of FAO (Arabic, Chinese, English, French, Russian and Spanish). In cases where the language of the agreement is not an official language of FAO, the conciliation or the arbitration proceedings shall be conducted in English.

2. Amendments

Any changes or amendments to this Agreement shall be made in writing and on the basis of mutual consent of the signatories to this Agreement.

Signed on behalf of the Food and Agriculture Organization of the United Nations:

Signature: _____

Date: _____

19/06/2019

Mr Dominique Burgeon, Director, Emergency and Resilience Division (PSE)

Signed on behalf of the of the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" ("IZSAM"):

Signature: _____

Date: _____

Mr Nicola D'Alterio, General Director acting or his/her designate

The Service Provider will sign two copies of this Agreement and return one to the Responsible Officer.

ANNEX 1

TERMS OF AGREEMENT

1. Background

Currently the Laboratory Information Management System (LIMS) SILABFA (SILABFA) is installed in eleven African Countries (Namibia, Botswana, Zimbabwe, Zambia, Tanzania, Uganda, Kenya, Ethiopia, Senegal, Cote d'Ivoire and Cameroon). Since April 2013, the SP was involved, through a Letter of Agreements (LoA), in FAO project to the implementation of a Laboratory Information Managements System (LIMS) in the Tanzanian Veterinary Laboratory Agency (TVLA) 2 peripheral offices (Arusha and Iringa) and extended it in Botswana National Veterinary Laboratory (BNVL). A LoA was signed in 2016 in order to install SILABFA in Kenya, Ethiopia, Uganda and extended it in Tanzania's TVLA as well as 5 peripheral offices. SILABFA has been successfully installed in CVL and KALRO in Kenya, NAHDIC in Ethiopia and NADDEC in Uganda. An assessment mission was held in LANAVET (Cameroon) in order to study the possibility of implementing SILABFA. A LoA was signed in 2017 in order to extend the installation of SILABFA Tanzania (in VIC-Zanzibar); in Ethiopia (in peripheral laboratories Asella, Kombolcha, Semera); in Kenya (in CVL-FMD Embakasi and in three peripheral Laboratories Kericho, Karatina, and Nakuru) and to newly install it in Cameroon in LANAVET Headquarter at Garoua and LANAVEX Annex in Yaoundé, in Côte d'Ivoire (at LANADA-LCVB) and Senegal (at LNERV).

Since November 2013, SILABFA has been in use in TVLA and, during following years, in 7 peripheral Laboratories as well. The paper-based system has been removed and used only in case of power outage. Final Test Reports have been produced and printed. Personnel of the different sections were trained by experts from the SP on their respective roles in the SILABFA system. All diagnostic sections now report only through SILABFA, greatly improving the turnaround time for clinical cases. Where appropriate, reports can be e-mailed to the customer. SILABFA is installed in the TVLA since 2013 and properly works in all TVLA sections (CVL and CIDB) and in 7 peripheral labs (Mwanza, Arusha, Iringa, Tanga, Mtwara, Dodoma and Tabora). The peripheral labs are connected to the SILABFA's server located in TVLA - HQ at Dar Es Salaam. In June 2018, two SILABFA administrator from TVLA, received a 4-weeks hands-on training in Teramo, Italy. In August 2018 the SP installed SILABFA at VIC-Zanzibar and provide training to users, reviewed the correct usage of SILABFA in the Tanzania Veterinary Laboratory Agency (TVLA) Headquarters (CVL and CIDB) and implemented SILAB v 2.0 (including the Money Tracking module, the linkage between SILABFA and the Near InfraRed Spectroscopy machine). SILABFA was customized for Epidemiology Unit needs and the epidemiology module was installed in Dodoma Epi Unit and personnel was trained. Requests of customization were collected and installed. In March 2019, a backstopping visit was conducted to check the SILABFA use in TVLA HQ and peripheral laboratories, to install a new "Inventory" module in both TVLA and VIC-Zanzibar (both installed in the same TVLA HQ server) and to continue staff training in VIC-Zanzibar.

Since May 2016 SILABFA has been installed in NADDEC, Uganda, and staff from Sample Reception, Bacteriology, Molecular Biology and Serology has been trained. Due to logistic issues, the local personnel needs additional support in order to extend SILABFA to whole lab. In December 2018 the SP conducted a review of SILABFA installation in NADDEC, implemented SILAB v 2.0 and a training-on-the-job to NADDEC personnel from the six laboratories in NADDEC (Bacteriology; Serology; Biochemistry; Pathology; Molecular biology and Epidemiology). Requests of customization were collected and installed. Geographic and administrative data of Uganda were update in the SILABFA database and now all districts, Sub-counties and Parish (Wards) are stored in the system. The PowerBI tool for epidemiology analysis was installed in the epidemiologist's laptop and connected to SILABFA database. The new inventory management module of SILABFA was

also installed as "demonstration data". In January 2019, two SILABFA administrator from NADDEC received a 4-weeks hands-on training in Teramo, Italy. In May 2019, a backstopping visit was conducted to check the SILABFA use and to install a new "Inventory" module. The critical aspects verified during the visit are the same which caused the failure of the first SILABFA installation in 2016 and only small steps forward have been made to solve these issue, such as the purchase of a small router to have a Wi-Fi internet connection but providing weak signal and usable only by few persons. If NADDEC wants SILABFA to be used, some organization changes are required and the software must be working regularly. In particular, fundamental requisites to go ahead with the project are a good and powerful internet connection for remote support and, at least, UPS batteries for main devices.

Since February 2017 SILABFA is installed in in CVL Kenya Sample Reception, Pathology, Virology and Bacteriology lab. CVL's personnel has autonomously extended the system to other laboratory sections. Automatic signatures in the Final Test Report have been introduced. The Duty Veterinarians are now able to sign the report without printing and they can send the report automatically to the customers.. In June 2018, two SILABFA administrator from CVL Kenya received a 4-weeks hands-on training in Teramo, Italy. With their support, SILABFA use was extended in CVL-FMD Embakasi and in three Regional Veterinary Investigation Laboratories namely: Kericho, Karatina, and Nakuru. In KALRO, Kenya, the system has been installed since February 2017 and Bacteriology and Virology personnel were trained. KALRO is a laboratory focused in research activities and they are not using SILABFA on a routine basis.

Since July 2017 SILABFA is installed in NAHDIC, Ethiopia. The system has been installed in Sample Reception and all NAHDIC Lab in Sebeta has been involved in the training. SILABFA has thus been used in NAHDIC HQ since 2017 and currently it is the official system used in all sections in routine way. In February 2018, two SILABFA administrator from NAHDIC, received a 4 and 8-weeks (for the Local administrator and the IT director, respectively) hands-on training in Teramo, Italy- but the IT director left NAHDIC in July 2018. In April 2018, experts from the SP trained staff from NAHDIC and three regional labs (Asella, Kombolcha, Semera). In March 2019, a backstopping mission to in order to assess the project's progress in terms of deadlines allowed the SP to implement SILAB v 2.0 at NAHDIC and Asella Regional Lab. The SP visited VDFACA quality control lab to assess the eligibility for the establishment of SILABFA and visited the Epidemiology unit under Ministry of Agriculture the possibilities of linking NAHDIC SILABFA with the national surveillance systems.

Since May 2018, experts from the SP installed SILABFA in Cameroon and trained staff from the LANAVEX Annex in Yaoundé and SILABFA national experts from Ethiopia installed SILABFA in the LANAVET Headquarter at Garoua (in three pilot testing sections and the sample reception unit). Requests of customization were collected and installed. In January 2019, two SILABFA administrator from LANAVET Garoua, received a 4-weeks hands-on training in Teramo, Italy. In April 2019, a backstopping mission was conducted, and new inventory module and email alerts for notifiable diseases was installed in LANAVET Garoua, to extend SILABFA to all sections.

SILABFA was installed in Senegal at LNERV in 2018 and in Côte d'Ivoire at LANADA-LCVB in 2019. In January 2019, two SILABFA administrator from LNERV and two from LCVB, received a 4-weeks hands-on training in Teramo, Italy. The local staff is continuing the self training period after SP visit. The system is used in all labs sections and is expected to become official LIMS for LNERV and LANADA-LCVB by 2019.

For all Countries involved in the project, the SP personnel guarantees an help desk service via email (silab.support@izs.it), phone and remote control, and constantly monitor the use of the system (eg nightly backup and free disk space) and provide a daily assistance (Monday-Friday) from Italy for

any technical problem and/or request for improvements. Support is also provided for database values in order to check logical double codes or values not semantically correct. All data are treated as confidential.

SILABFA has improved data accuracy, introduced effective sample traceability and increased laboratories' overall effectiveness. It also allows data to be accessible to others, promoting collaboration among different departments and laboratories.

In this LoA, the SP will ensure also the interoperability between SILABFA and other systems in place (e.g. FAO-EMA-i and LINA from Sandia National Laboratories). The FAO-EMA-i is a mobile application developed by FAO that collects data on suspected cases of animal diseases and on samples taken in the field. By linking FAO-EMA-i and SILABFA, the information from the sampling event will be automatically inserted in SILABFA during the acceptance phase of the samples at the lab, to have automatically inserted in the system some info about the sampling event, and the results of testing can be shared with EMA-i. Under the previous LoA, a unique key was developed to be used by the two systems for exchanging information that is the unique code key generated by the Android engine for each user-device the ID_EVENT, initially produced by EMA-i and reported on the samples taken, on the sample submission form and on all the notifications that EMA-i sends in the authorization process. LINA is a One Health laboratory network optimization system which provides interactive lab capacity maps, sample transport routing, and capacity development analysis, and is designed to improve the efficiency and security of laboratory networks. LINA provides sophisticated computational modelling and data analytics functionality in an easy-to-use web-based software package. The system combines secure data storage, sample-route optimization, and predictive modelling to enable decision makers to improve current lab network operations and planning. SILABFA collects, curates and stores data on laboratory throughput, turnaround time, specimen source locations which could greatly improve the quality, accuracy and utility of LINA analyses, potentially improving laboratory system efficiency and effectiveness in partner countries. Providing capabilities for SILABFA and LINA to Interoperate could potentially improve functioning of animal-health laboratories in developing countries. LINA's mapping and analytical functions would be markedly improved with more accurate and timely information on laboratory testing activities. Near-real-time data updates from the SILABFA database could also improve the utility of LINA for situational awareness and disaster response decision support, for example as a core component of countries' emergency operation centers. Laboratories currently using SILABFA could leverage LINA capacity mapping and visualization to provide user-friendly guidance to lab management on laboratory assets, referral policies, and client catchment areas. For certain partner countries, SILABFA and LINA interoperability could serve as a powerful impetus to initiate and evaluate One-Health approaches. Since LINA also concurrently operates on human health laboratory networks, scenario analyses comparing traditional and One-Health approaches could provide quantitative metrics needed to objectively evaluate the potential advantages and disadvantages of adopting One-Health procedures.

The module of basic LIMS (SLIMS) developed in the previous LoA will be transferred to countries that did/will not install SILABFA. The SP will support the FAO - ECTAD team in IT training activities following the needs of FAO. IT personnel and local veterinarians or technicians will ensure support and training during SILABFA mission of Italian experts. This is also useful to guarantee future sustainability of SILABFA

2. Terms of Reference

2.1 Definition of Output(s) and/or Outcome(s)

In all of the below, the IZS Teramo SILABFA team will be supported by local IT personnel, selected by the IZS Teramo experts according to the following criteria of suitability:

The SILAB IT local support staff will have experience in the following web applications:

- Oracle database and PL-SQL
- Java and J2EE
- Deployment of Web applications

The SILAB local systems analyst will have knowledge of:

- Network and LAN infrastructure
- Server and PCs settings
- OS: Linux and Windows
- Backup procedures development
- Experience in Veterinary Laboratories and knowledge of Lab procedures and SOPs (Tests, Methods and workflow)

Veterinarian or technician that are SILABFA administrator in their own lab can be selected to participate in SILABFA missions in order to ensure support and training on beside of Italian experts. This local personnel will also ensure audit mission in the peripheral or regional Labs in the respective country.

The cost of the mission of this local personnel is not in charge of the present LoA. Dedicated LoA will be in place from each Country with the respective FAO-ECTAD office.

Under Output/outcome 1: Completion of installation and training for NADDEC laboratory and one other peripheral laboratory in Uganda to strengthen capacity for better sample management and analysis and connection with other systems established.

Performance indicators:

- *Report to FAO and to NADDEC that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued;*
 - *monthly reports about SILABFA use in NADDEC HQ and peripheral laboratories (Number of Receptions- results inserted by Section – test reports produced);*
 - *the number and list of requests gathered by Help desk service and Number of requests solved.*
 - *the number of samples received in the lab through FAO-EMA-i using SILABFA interoperability; Number of test results sent to FAO-EMA-i from SILABFA*

Under Output/outcome 2: Support the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center (VIC) in Tanzania to use SILABFA in order to strengthen capacity for better sample management and analysis and connection with other systems established in TVLA and customization for Epidemiology Unit needs.

Performance indicators:

- *Report to FAO and to TVLA that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*
 - *monthly reports about SILABFA use in TVLA HQ, in peripheral labs and VIC-Zanzibar lab as well (Number of Receptions- results inserted by Section – test*

- reports produced – records of TVLA IT technician restoring the system independently);*
- *the number and list of requests gathered by Help desk service and Number of requests solved.*
- *number of emails sent by SILABFA for notifiable diseases to the responsible person nominated by the country (In case the email service is in place and working)*

Under Output/outcome 3: Completion of installation in the *Laboratoire Nationale Vétérinaire (LANAVET)* (Garoua and Yaoundé) in Cameroon to strengthen capacity for better sample management and analysis and connection with other systems established and assessment of Epidemiology Unit needs.

Performance indicators:

- *Report to FAO and to LANAVET that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*
 - *monthly reports about SILABFA use in LANAVET.- Garoua and Yaoundé(Number of Receptions- results inserted by Section – test reports produced – records of LANAVET IT technician restoring the system independently);*
 - *number and list of requests gathered by Help desk service and Number of requests solved.*

Under Output/outcome 4. Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend the usage of SILABFA in one peripheral laboratory (Herna) in Ethiopia to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Performance indicators:

- *Report to FAO and to NAHDIC that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*
 - *monthly reports about SILABFA use in NAHDIC and in four peripheral laboratories (Number of Receptions- results inserted by Section – test reports produced – records of IT technicians restoring the system independently);*
 - *number and list of requests gathered by Help desk service and Number of requests solved.*
 - *number of emails sent by SILABFA for notifiable diseases to the responsible person nominated by the country (in case the email service is in place and working)*

Under Output/outcome 5 Completion of installation in the Central Veterinary Laboratory (CVL- HQ, Kabete and CVL-FMD Embakasi), and extend to one peripheral Laboratory in Kenya to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Performance indicators:

- *Report to FAO and to the laboratories that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*

- *monthly reports about SILABFA use in the different laboratories (Number of Receptions- results inserted by Section – test reports produced – records of IT technicians restoring the system independently);*
- *the number and list of requests gathered by Help desk service and Number of requests solved.*
- *number of emails sent by SILABFA for notifiable diseases to the responsible person nominated by the country (in case the email service is in place and working)*

Under Output/outcome 6: Completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV)* in Senegal to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

Performance indicators:

- *Report to FAO and to LNERV that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*
 - *monthly reports about SILABFA use in LNERV (Number of Receptions- results inserted by Section – test reports produced – records of IT technicians restoring the system independently);*
 - *the number and list of requests gathered by Help desk service and Number of requests solved.*
 - *number of emails sent by SILABFA for notifiable diseases to the responsible person nominated by the country (in case the email service is in place and working)*

Under Output/outcome 7: Completion of installation in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville (LANADA-LCVB)* in Côte d'Ivoire to strengthen capacity for better sample management and analysis and connection with other systems established and in assessing the needs for the development of a national Animal Health Information System .

Performance indicators:

- *Report to FAO and to LANADA that will include:*
 - *the number and list of trained staff;*
 - *the number and list of new people who passed the test/Number of training certificates issued (if any);*
 - *monthly reports about SILABFA use in LANADA-LCVB (Number of Receptions- results inserted by Section – test reports produced – records of IT technicians restoring the system independently);*
 - *the number and list of requests gathered by Help desk service and Number of requests solved.*
 - *the number of samples received in the lab through FAO-EMA-i using SILABFA interoperability; Number of test results sent to FAO-EMA-i from SILABFA*

Under Output/outcome 8: Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA.

Performance indicators:

- *Basic LIMS solution installed in beneficiary countries that requested it.*

Output/outcome 9. Development of new Technical Solution for SILABFA including interoperability with other IT systems

Performance indicators:

- *Connection Established between SILABFA and the Laboratory Infrastructure Network Analytics system (LINA) from Sandia National Laboratories in test environment*
- *Transmission and exchange of data between the systems in test environment*

Under Output/outcome 10: SILABFA and SLIMS customized for AMR including customization for Epidemiology Unit needs.

Performance indicators:

- *Solutions proposed for SILABFA and SLIMS customization for AMR including for Epidemiology Unit needs*

2.2 Description of Services

The activities to be conducted under this agreement are as follows:

Under Output/outcome 1: Completion of installation and training for NADDEC laboratory and extend to one other peripheral laboratory in Uganda to strengthen capacity for better sample management and analysis and connection with other systems established.

- i. **Support for SILAB extension:** experts from the SP will provide support to the local staff (IT and administrator) trained in January 2019 to extend the installation of SILABFA to one other peripheral laboratory in Uganda , including twice a month a Skype call between SP experts and local personnel to verify the SILABFA use, to solve doubts and difficulties;
- ii. **Customization of SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This daily Help Desk Service will be supported via email, phone and/or remote control mechanisms. NADDEC's Lab staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.
- iii. **Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i:** the interoperability between SILABFA and FAO-EMA-i will be tested. This connection will allow all data from the field collected through FAO-EMA-i to be automatically transferred to SILABFA. Furthermore all samples will be automatically registered at NADDEC by reading the FAO-EMA-i database and SILABFA will also print all label for the samples (by using the label printer). Currently, all labels are still manually written by NADDEC staff.

Under Output/outcome 2: Support the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center in Tanzania to use SILABFA in order to strengthen capacity for better sample management and analysis and connection with other systems established in TVLA and customization for Epidemiology Unit needs

- i. **Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i and assessment of e-gov solution:** The interoperability between SILABFA and FAO-EMA-i will be tested. This connection will allow all data from the field collected through FAO-EMA-i to be automatically transferred to SILABFA. Tanzania is implementing the "e-gov" solution at all public offices levels. The application of modern Information and Communication Technologies (ICT) may help improve the public sector by contributing to new services and processes that address citizens as well as government-to-government services, involve citizens more directly in decision making and contribute to streamlining work processes and standardizations needed to develop a well-functioning public sector. In Tanzania, the Ministry of Livestock requested to introduce SILABFA in the workflow in order to make data available after Test Reports publication and to be able to access to lab end Epi data at all government level. The SP experts will conduct an assessment with the "e-gov" coordination team in order to analyse the current situation and submit a proposal that could be partially based on the Italian solution "Vetinfo portal".
- ii. **Customization of SILABFA for Data analysis and Epidemiology Unit needs:** There is a need to facilitate rapid and fluid data transfer as well as collaborations between national institutions, in particular from/to the laboratories from/to epidemiology units of veterinary services. The connection of SILABFA to other systems could allow to insert data once in the system and make data automatically available to other systems in use. In 2018, SILABFA was customized for Epidemiology Unit needs and the epidemiology module was installed in Dodoma Epi Unit. Epidemiology unit from DVS Tanzania will provide the needs to receive data from TVLA Headquarters (CVL and CIDB) and experts from SP will develop the solution to cover the requests. The users will be trained. Customization needs for Epidemiology Unit with regards to Antimicrobial resistance (AMR) data will be assessed. SILABFA is able to collect all diagnostic data including results of AMR but currently just the interpretation (based on EUCAST values) is saved. The detailed result (mm or quantity) could be saved depending on the Epi unit specific needs. In order to allow for consistency in the analysis of all data collected, some dedicated report for AMR data analysis will be studied. For assistance on data analysis, SILABFA could be used to monitor the laboratory activities and performances. The manager can see in real time all tests pending for results/validations/ test reports/ payments in the whole lab or in a specific location or in a section. It provides also the possibility to monitor customer service in terms of the gap between actual response and expected time, technical efficiency in terms of gaps between actual time requested to perform a diagnostic test and the same time predetermined in standard situations, as well as to collect data on the frequency of acceptance of samples and, analyzing these data, allows to adjust the presence of personnel to the needs.
- iii. **Customization of SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This daily Help Desk Service will be supported via email, phone and/or remote control mechanisms. TVLA's and VIC's Lab staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.

Under Output/outcome 3 Completion of installation in the *Laboratoire Nationale Vétérinaire* (LANAVET) (Garoua and Yaoundé) in Cameroon to strengthen capacity for better sample

management and analysis and connection with other systems established and assessment of Epidemiology Unit needs.

- i. **Conduct a backstopping visit for the completion of installation in LANAVET annex of Yaoundé and connection to LANAVET Garoua main server and data analysis:** in 2018 SILABFA was installed on the server in LANAVET HQ at Garoua and annex in Yaoundé and started to implement it in pilot phase. Experts from the SP will visit LANAVET Yaoundé in order to assess the project's progress in terms of deadlines, and identification of any emerging problem(s). Experts from the SP will meet with staff from Garoua in LANAVET Yaoundé. A report of this audit (Interim report) will be drafted and shared with LANAVET.
- ii. **Assessment on National Epi Unit needs:** There is a need to facilitate rapid and fluid data transfer as well as collaborations between national institutions, in particular from/to the laboratories from/to epidemiology units of veterinary services. The connection of SILABFA to other systems could allow to insert data once in the system and make data automatically available to other systems in use. The Epidemiology unit from Cameroon will provide the needs and experts from SP will study the solution to cover the requests.
- iii. **Customization SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This Help Desk Service will be supported via email, phone and/or remote control mechanisms. LANAVET's Laboratory staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.

Under Output/outcome 4. Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend to one peripheral laboratory (Herna) in Ethiopia to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

- i. **Conduct a backstopping visit for the completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend the usage of SILABFA in one peripheral laboratory (Herna):** The goal of this activity is to connect NAHDIC's headquarter (in Sebeta) and four NAHDIC's peripheral laboratories (out of six in total in the country). SILABFA has already been installed in 3 peripheral laboratories (Asella, Kombolcha, Semera) and will be installed in one other regional laboratories: Herna. Experts from the SP will visit NAHDIC HQ in order to assess the project's progress and will train personnel from peripheral laboratories in NAHDIC HQ. After this period of training, NAHDIC personnel with IT local experts will visit each peripheral laboratory involved to continue the training and ensure the connection to the SILABFA server located in NAHDIC HQ. Customization requests will be collected by the SP.
 - The prerequisites expected from the four peripheral laboratories for this activity are:
 - Internet for SILABFA use and helpdesk activities
 - Infrastructure support by NAHDIC IT personnel.
 - Support from Lab Management.

- ii. **SILABFA customization for Data analysis and Epidemiology Unit needs:** There is a need to facilitate rapid and fluid data transfer as well as collaborations between national institutions, in particular from/to the laboratories from/to epidemiology units of veterinary services. The connection of SILABFA to other systems could allow to insert data once in the system and make data automatically available to other systems in use. Epidemiology unit from Ethiopia will provide the needs to receive data from NAHDIC and experts from SP will develop the solution to cover the requests. The users will be trained. Customization needs for Epidemiology Unit with regards to Antimicrobial resistance (AMR) data will be assessed. Epidemiology Unit with regards to Antimicrobial resistance (AMR) data will be assessed. SILABFA is able to collect all diagnostic data including results of AMR but currently just the interpretation (based on EUCAST values) is saved. The detailed result (mm or quantity) could be saved depending on the Epi unit specific needs. In order to allow for consistency in the analysis of all data collected, some dedicated report for AMR data analysis will be studied. For assistance on data analysis, SILABFA could be used to monitor the laboratory activities and performances. The manager can see in real time all tests pending for results/validations/ test reports/ payments in the whole lab or in a specific location or in a section. It provides also the possibility to monitor customer service in terms of the gap between actual response and expected time, technical efficiency in terms of gaps between actual time requested to perform a diagnostic test and the same time predetermined in standard situations, as well as to collect data on the frequency of acceptance of samples and, analyzing these data, allows to adjust the presence of personnel to the needs.
- iii. **Analyse SILABFA interoperability with Ministry of Agriculture surveillance systems (Animal Disease Notification and Investigation System-ADNIS and Disease Occurrence and Vaccination Reporting-DOVAR) and SILABFA customization for Epidemiology Unit needs:** ADNIS is under development at the Epidemiology Directorate (Ministry of Agriculture). It operates at detailed level for each suspected cases from district and Kebele level. Using an app by mobile phone each vet in the field will insert data regarding the place, the owner, species, the suspected disease, the activities carried out to reduce the risk of disease spread. DOVAR system is currently used and provides a monthly report of disease outbreak and vaccinations programmes in the country.
- iv. **Customization of SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This Help Desk Service will be supported via email, phone and/or remote control mechanisms. NAHDIC's and peripheral's laboratories staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.

Under Output/outcome 5. Completion of Installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and in Kericho, Karatina, and Nakuru and extend to one new peripheral Laboratory in Kenya (either Garissa, or Marikani or Eldoret) to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

- i. **Conduct a backstopping visit for the completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend the usage of SILABFA in one new peripheral laboratories (either Garissa, Marikani, or Eldoret), provide support in using SILABFA data for analysis and improvement of the**

laboratories activities in Kenya: The goal of this activity is to connect CVL headquarter (in Sabeta) with CVL-FMD Embakasi and Kenya's peripheral laboratories. In 2018 SILABFA was installed in CVL-FMD Embakasi and in three peripheral Veterinary Investigation Laboratories namely: Kericho, Karatina, and Nakuru with the support of two SILABFA administrators from CVL Kenya. Experts from the SP will visit CVL-HQ, Kabete and CVL-FMD Embakasi in order to assess the project's progress in terms of deadlines, and identification of any emerging problem(s). Experts from the SP will train personnel from peripheral laboratories in CVL HQ in Kabete. At the completion of the training the staff will be expected to be conversant with the SILABFA and apply it by themselves and the certificate will be released to the people trained. After this period of training, CVL personnel with IT local experts will visit the peripheral laboratories involved to continue the training and ensure the connection to the SILABFA server located in CVL HQ. In fact the connection will be established using internet connection through VPN or public IP. In case the peripheral labs have good internet connection, a browser will be installed on client PCs and the peripheral labs will use the central SILABFA database. Customization requests will be collected by the SP.

The prerequisites expected from the peripheral laboratories for this activity are:

- Internet for SILABFA use and helpdesk activities Infrastructure support by DVS IT personnel.
- Support from Lab Management.

- ii. **SILABFA customization for Data analysis and Epidemiology Unit needs:** There is a need to facilitate rapid and fluid data transfer as well as collaborations between national institutions, in particular from/to the laboratories from/to epidemiology units of veterinary services. The connection of SILABFA to other systems could allow to insert data once in the system and make data automatically available to other systems in use. Epidemiology unit from Kenya will provide the needs to receive data from CVLs and experts from SP will develop the solution to cover the requests. The users will be trained. SILABFA is able to collect all diagnostic data including results of AMR but currently just the interpretation (based on EUCAST values) is saved. The detailed result (mm or quantity) could be saved depending on the Epi unit specific needs. In order to allow for consistency in the analysis of all data collected, some dedicated report for AMR data analysis will be studied. For assistance on data analysis, SILABFA could be used to monitor the laboratory activities and performances. The manager can see in real time all tests pending for results/validations/ test reports/ payments in the whole lab or in a specific location or in a section. It provides also the possibility to monitor customer service in terms of the gap between actual response and expected time, technical efficiency in terms of gaps between actual time requested to perform a diagnostic test and the same time predetermined in standard situations, as well as to collect data on the frequency of acceptance of samples and, analysing these data, allows to adjust the presence of personnel to the needs.
- v. **Customization of SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This Help Desk Service will be supported via email, phone and/or remote control mechanisms. NAHDIC's and peripheral's laboratories staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.

- vi. **Eastern Africa Regional Laboratory Network (EARLN) inter-connection using SILABFA:** Verify the possibility of build a platform for information sharing and communication among EARLN laboratories where SILABFA is installed to share data that are relevant at international level (e.g. outbreak, epidemiology, notifiable disease, etc.). The SP will analyse and develop the solution for interoperability between each local SILABFA.

Under Output/outcome 6. Completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV)* in Senegal to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.

- i. **Conduct a backstopping visit for the completion of installation in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV)* in Senegal, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Senegal, SILABFA customization for Epidemiology Unit needs:** According to the conclusion of the last mission (February 2019), SILABFA is fully adopted by the Samples Reception service while other services use it in a non-continuous way. Therefore, the backstopping visit will be the occasion to verify the SILABFA extension in all sections, pre-requisite to leave the paper system and identify SILABFA as official LIMS. A new SILABFA version with all requests of customization will be installed and all modifications will be showed to the personnel.
- ii. **SILABFA customization for Data analysis and Epidemiology Unit needs:** There is a need to facilitate rapid and fluid data transfer as well as collaborations between national institutions, in particular from/to the laboratories from/to epidemiology units of veterinary services. The connection of SILABFA to other systems could allow to insert data once in the system and make data automatically available to other systems in use. Epidemiology unit from Kenya will provide the needs to receive data from CVLs and experts from SP will develop the solution to cover the requests. The users will be trained. SILABFA is able to collect all diagnostic data including results of AMR but currently just the interpretation (based on EUCAST values) is saved. The detailed result (mm or quantity) could be saved depending on the Epi unit specific needs. In order to allow for consistency in the analysis of all data collected, some dedicated report for AMR data analysis will be studied. For assistance on data analysis, SILABFA could be used to monitor the laboratory activities and performances. The manager can see in real time all tests pending for results/validations/ test reports/ payments in the whole lab or in a specific location or in a section. It provides also the possibility to monitor customer service in terms of the gap between actual response and expected time, technical efficiency in terms of gaps between actual time requested to perform a diagnostic test and the same time predetermined in standard situations, as well as to collect data on the frequency of acceptance of samples and, analysing these data, allows to adjust the presence of personnel to the needs.
- iii. **Customization SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This Help Desk Service will be supported via email, phone and/or remote control mechanisms. LNERV staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will

- provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.
- iv. **Analysis of technical interoperability of SILABFA with Kobotoolbox:** the interoperability between SILABFA and Kobotoolbox will be tested. Kobotoolbox is a system used in test in Senegal to easily and very quickly set up data collection tools directly in the field via smartphones and tablets. This platform will be used to create epidemiological databases and also to be able to administer them. The data collected will be used to manage outbreak and other emergencies and will be used to inform the International Organization of the animal health (OIE) as well. The connection between Kobotoolbox Database and SILABFA will allow all data from the field, collected through Kobotoolbox, to be automatically transferred to SILABFA and to have faster results automatically insert in Kobotoolbox.

Under Output/outcome 7: Completion of installation in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville (LANADA-LCVB)* in Côte d'Ivoire to strengthen capacity for better sample management and analysis and connection with other systems established and assessing the needs for the development of a national Animal Disease Management System.

- i. **Conduct a backstopping visit for the completion of installation in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville (LANADA-LCVB)* in Côte d'Ivoire and SILABFA customization for Epidemiology Unit needs:** early 2019, the experts from the SP installed SILABFA in the server in LANADA-LCVB and started to implement it in the pilot phase. In the pilot phase, in addition to Sample Reception section, two sections for each laboratory were selected by the local focal point for the pilot phase. During this pilot phase, SILABFA was used in parallel with the system previously in use. The local IT technicians were trained on the day-to-day management of the system. Installation and configuration guidelines applied during the installation phase were made available to the LANADA staff and to the local IT technicians. In the current LoA, the experts from the SP will support local personnel to extend SILABFA in all other sections, train the personnel of these new sections and install a SILABFA new version with the customizations required.
- ii. **Animal Health Information System: system design assessment:** this national project called Decisional Information System of Veterinary Services of Côte d'Ivoire (SIDSV-CI) (developed at the level of the Directorate of Veterinary Services DVS in the Ministry of livestock and fisheries) is aimed at developing a computerized integrated system for DVS to collect, manage and systematically analyse data in order to generate appropriate information for various stakeholders along livestock food value chains. The integration with SILABFA on place at LANADA will permit to automatically gather the results of the laboratory tests performed on samples taken in suspected or confirmed outbreak. Under the current LoA, the experts from the SP will assess the user requirements and will initiate the system design. Experts from the SP and DVS team will perform an analysis of the current information systems in place and to be considered in the framework of the new integrated SIDSV-CI. Input and output data flows will be also discussed and an in-depth information needs analysis of DVS will be also conducted. The IT infrastructure will be assessed and critical points will be highlighted. A detailed document will then be produced describing the system's components, entities and their relationships, as well as the functional requirements.
- iii. **Customization SILABFA to new requirements and provision of maintenance and Helpdesk:** experts from the SP will customize SILABFA on the basis of expressed and agreed needs. A help desk service to respond to technical problems or requests for improvement will continue to be provided as a daily assistance from the SP. This Help Desk Service will be supported via email, phone and/or remote control mechanisms. LANADA-

LCVB staff will be constantly invited to report problems and make requirements for improvement of the system. The requests will be stored in the help-desk database of the SP. Throughout the project's life, experts from the SP will constantly monitor the use of the system, and will provide immediate assistance for all arising problems. The on-line user manual and FAQ will be reviewed according to customizations and new functionalities will be added.

- iv. **Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i:** the interoperability between SILABFA and FAO-EMA-i will be tested. This connection will allow all data from the field collected through FAO-EMA-i to be automatically transferred to SILABFA.

Under Output/outcome 8: Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA.

- i. Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA, namely Burkina Faso, DRC, Ghana, Guinea, Liberia, Mali and Sierra Leone,: Participation as a trainer in one regional training organized by FAO to train participants on the use of the basic LIMS (SLIMS) developed by the SP in the previous LoA.
- ii. Feasibility study to develop a connection solution to ensure the interoperability between SLIMS and FAO-EMA-i.

Under Output/outcome 9: Development of new Technical Solution for SILABFA including interoperability with other systems.

- i. **Study of preliminary needs and prerequisites for the development of the connection solution to ensure the interoperability between SILABFA and Laboratory Infrastructure Network Analysis (LINA) (from Sandia National Laboratories) to ensure a linkage and transfer of sample data (and meta-data) between these two systems:** LINA is a One Health laboratory network optimization system which provides interactive lab capacity maps, sample transport routing, and capacity development analysis, and is designed to improve the efficiency and security of laboratory networks. SILABFA collects, curates and stores data on laboratory throughput, turnaround time, specimen source locations which could greatly improve the quality, accuracy and utility of LINA analyses, potentially improving laboratory system efficiency and effectiveness in partner countries. Providing capabilities for SILAB and LINA to interoperate could potentially improve functioning of animal-health laboratories in developing countries. The SP will develop together with Sandia National Laboratories the solution to establish the connection with the existing system in place following the needs of local authority. In the future, it is proposed to elucidate the technical and programmatic tasks needed to implement data sharing between SILAB and LINA in a particular country. Focusing on a specific country will help engineers efficiently target activities to producing a functioning interoperable system for proof of concept operation.

Under Output/outcome 10: SILABFA and SLIMS customized for AMR, including customization for Epidemiology Unit needs. The SP will develop an AMR module in SILABFA and in SLIMS. The AMR module will help laboratories to trace all samples received for Antimicrobial Susceptibility Testing, to manage the AMR data produced and to harmonize national data shared with epidemiological units to facilitate analysis thus ensuring surveillance data is used by policy makers by facilitating management and access to data.

2.3. Workplan and Timeframe (Duration)

Activity	Timeframe	Risks/possible restrictions
Under Output/outcome 1		
<p>Completion of installation and training for NADDEC laboratory and extend to one other peripheral laboratory in Uganda to strengthen capacity for better sample management and analysis and connection with other systems established.</p>	<p>-Support for SILAB extension to all sections in NADDEC and in one other peripheral laboratory in Uganda; twice a month a Skype call between SP experts and local personnel to verify the SILABFA use, to solve doubts and difficulties; - Customization SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration). -Interoperability between SILABFA and FAO-EMA-i developed whole LoA duration.</p>	<p>NADDEC personnel unavailable for training</p> <p>FAO-EMA-i not ready to test the interconnection with SILABFA</p>
Under Output/outcome 2		
<p>Support the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center in Tanzania to use SILABFA in order to strengthen capacity for better sample management and analysis and connection with other systems established in TVLA and customization for Epidemiology Unit needs.</p>	<p>Mission (2 people/ 1 week) December 2019 -Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i and assessment of e-gov solution, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Tanzania: whole LoA duration. -Customization of SILABFA for Data analysis and Epidemiology Unit needs: whole LoA duration -Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration). -Project monitored and reported after the mission (by 30 days of the mission end)</p>	<p>Server availability or internet in VIC Zanzibar</p> <p>Unavailable public IP for SILABFA in TVLA</p> <p>FAO-EMA-i not ready to test the interconnection with SILABFA</p>
Under Output/outcome 3		
<p>Completion of installation in the <i>Laboratoire Nationale Vétérinaire</i> (LANAVET) (Garoua and Yaoundé) in Cameroon to strengthen capacity for better sample management and analysis and connection with other systems established and assessment of Epidemiology Unit needs.</p>	<p>-Completion of installation in Laboratoire Nationale Vétérinaire (LANAVET) annex of Yaoundé and connection to LANAVET Garoua main server, provide support in using SILAB data for analysis and improvement of the laboratories activities in Cameroon: Mission (2 people/ 1 week) November 2019 -Assessment of Epidemiology Unit needs: whole LoA duration. -Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration).</p>	<p>Yaoundé laboratory's ability to receive the SP (if buildings renovation are finalized)</p> <p>No connection established between Garoua Database and Yaoundé</p> <p>Security</p>

	-Project monitored and reported after the mission (by 30 days of the mission end)	
Under Output/outcome 4		
Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend to one peripheral laboratory (Herna) in Ethiopia to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.	<p>-Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend the usage of SILABFA in one peripheral laboratory (Herna): Mission (2 people/ 1 and 2 weeks) July 2019</p> <p>- Customization of SILABFA for Data analysis and Epidemiology Unit needs: whole LoA duration.</p> <p>- Analyse SILAFA interoperability with Ministry of Agriculture surveillance systems (ADNIS and DOVAR) and SILABFA customization for Epidemiology Unit needs: whole LoA duration.</p> <p>- Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration).</p> <p>-Project monitored and reported after the mission (by 30 days of the mission end)</p>	Prerequisites respected in all facilities: i.e. good Internet Connection, PC's connected by local area network (LAN) or WAN ready to be used as well as printers and UPS for power cuts.
Under Output/outcome 5		
Completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend to one peripheral laboratory in Kenya to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs	<p>-Completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend the usage of SILABFA in one new peripheral laboratories (either Garissa, Marikani, or Eldoret), provide support in using SILABFA data for analysis and improvement of the laboratories activities in Kenya: Mission (2 people/ 1 and 2 weeks) October 2019</p> <p>-Customization of SILABFA for Data analysis and Epidemiology Unit needs: whole LoA duration</p> <p>-Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration).</p> <p>-Eastern Africa Regional Laboratory Network (EARLN) inter-connection using SILABFA: whole LoA duration</p> <p>-Project monitored and reported after the mission (by 30 days of the mission end)</p>	Prerequisites respected in all facilities: i.e. good Internet Connection, PC's connected by local area network (LAN) or WAN ready to be used as well as printers and UPS for power cuts.
Under Output/outcome 6		

<p>Completion of installation in the <i>Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV)</i> in Senegal to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs</p>	<p>-Completion of installation in the <i>Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV)</i> in Senegal, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Senegal, SILABFA customization for Epidemiology Unit needs: Mission (2 people/ 1 week) August 2019 -Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration). -Analysis of technical interoperability of SILABFA with Kobotoolbox: whole LoA duration. -Project monitored and reported after the mission (by 30 days of the mission end)</p>	<p>Lab personnel availability</p> <p>Unavailability of the developers of other tools or unwillingness to cooperate</p>
<p>Under Output/outcome 7</p>		
<p>Completion of installation in the <i>Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville (LANADA-LCVB)</i> in Côte d'Ivoire to strengthen capacity for better sample management and analysis and connection with other systems established and assessing the needs for the development of a national Animal Health Information System.</p>	<p>-Completion of installation in the <i>Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville (LANADA-LCVB)</i> and extend to two peripheral Laboratories in Côte d'Ivoire and SILABFA customization for Epidemiology Unit needs: Mission (2 people/ 2 weeks) September 2019 -Animal Health Information System: system design assessment: whole LoA duration. -Customization of SILABFA to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration). -Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i: whole LoA duration. -Project monitored and reported after the mission (by 30 days of the mission end).</p>	<p>Prerequisites respected in all facilities: i.e. good Internet Connection, PC's connected by local area network (LAN) or WAN ready to be used as well as printers and UPS for power cuts.</p> <p>Unavailability of the Ministry team to cooperate</p> <p>FAO-EMA-i not ready to test the interconnection with SILABFA</p>
<p>Under Output/outcome 8</p>		
<p>Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA</p>	<p>-Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA: Participation (as a trainer) in regional training organized by FAO to train participants on the use of SLIMS. -Feasibility study to develop a connection solution to ensure the interoperability between SLIMS and FAO-EMA-i: whole LoA duration.</p>	<p>Delay or cancellation of the training by FAO</p> <p>FAO-EMA-i not ready to test the interconnection with SLIMS</p>

	-Customization of SLIMS to new requirements and provision of maintenance and Helpdesk: when required (whole LoA duration). -Project monitored and reported after the mission (by 30 days of the mission end).	
Under Output/outcome 9		
Development of new Technical Solution for SILABFA including interoperability with other IT systems.	-Study of preliminary needs and prerequisites for the development of the connection solution to ensure the interoperability between SILABFA and Laboratory Infrastructure Network Analysis (LINA) (from Sandia National Laboratories) to ensure a linkage and transfer of sample data (and meta-data) between these two systems: whole LoA duration.	Unavailability of the developers of other tools or unwillingness to cooperate
Under Output/outcome 10		
SILABFA and SLIMS customized for AMR including customization for Epidemiology Unit needs.	-Study of prerequisites and first module design for SILABFA and basic LIMS (SLIMS) customization for AMR including for Epidemiology Unit needs: whole LoA duration	

2.4. Monitoring Mechanisms and Reporting Requirements

- A. An interim report on the status of the installation of SILABFA in the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and in Zanzibar Veterinary Investigation Center in Tanzania will be provided to FAO no later than one month after the mission is completed;
- B. An interim report on the status of the installation of SILABFA in LANAVET (Yaoundé and Garoua) in Cameroon will be provided to FAO no later than one month after the mission is completed;
- C. An interim report on the status of the implementation and installation of SILABFA in NAHDIC and in four peripheral laboratories in Ethiopia will be provided to FAO no later than one month after the mission is completed;
- D. An interim report on the status of the implementation and installation of SILABFA in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and in one peripheral laboratory in Kenya will be provided to FAO no later than one month after the mission is completed;
- E. An interim report on the status of the implementation and installation of SILABFA in the *Laboratoire National de l'Elevage et de Recherches Vétérinaires* (LNERV) in Senegal will be provided to FAO no later than one month after the mission is completed;
- F. An interim report on the status of the implementation and installation of SILABFA in the *Laboratoire National d'Appui au Développement Agricole-Laboratoire Central Vétérinaire de Bingerville* (LANADA-LCVB) in Côte d'Ivoire will be provided to FAO no later than one month after the mission is completed;
- G. An interim report on the status of the customization of SILABFA and SLIMS for AMR will be provided no later than one month after the mission in Tanzania is completed.

- H. A final report will gather all reports and include status of SILABFA implementation in Uganda and provide an executive summary of activities and results under the LoA within one month after the end of the LoA.
- I. The Service Provider should provide copies of evidence of expenses upon request.

The individual activity reports will be submitted electronically; the final report will be submitted both electronically and in hard copy. The reports are to be cleared by Dr Béatrice Mouillé, EMPRES Lab unit deputy coordinator, AGAH, FAO.

3. Inputs to be provided free of charge by Service Provider

3.1 List of Inputs

The Service Provider will use the software they have developed in-house: SILAB, as a basis for development of "SILAB for Africa". The Service Provider will use its facilities for the preparation of the software and manuals.

3.2 Timing of Inputs

The use of facilities/installations, the software will be provided all along the LoA.

4. Inputs to be provided in kind by FAO

4.1 List of Inputs

These inputs might include the following:

The FAO EMPRES laboratory unit staff and ECTAD Ghana/Nairobi staff will be available for communication with beneficiary laboratories and may provide additional information on laboratories, FAO-EMA-i, TADInfo, etc.

10. Detailed budget

<i>Under Output/outcome 1: Completion of installation and training for NADDEC laboratory and extend to one other peripheral laboratory in Uganda strengthen capacity for better sample management and analysis and connection with other systems established.</i>				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
<i>Provide support to extend SILABFA usage to all sections in NADDEC and in one other peripheral laboratory in Uganda</i>				
Fee	207.00	Person-day	13	2,691.00
SUB-TOTAL COST				2,691.00
<i>Customization of SILABFA to new requirements, provision of maintenance and Helpdesk</i>				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
<i>Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-i</i>				

Fee	207.00	Person-day	7	1,449.00
SUB-TOTAL COST				1,449.00
TOTAL COSTS Output/outcome 1				8,280.00
<i>Under Output/outcome 2: Capacity for better sample management and analysis strengthened in the Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center in Tanzania, connection with other systems established in TVLA and customization for Epidemiology Unit needs.</i>				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
<i>Completion of installation in Tanzania Veterinary Laboratory Agency (TVLA) (all peripheral laboratories) and Zanzibar Veterinary Investigation Center (VIC). Develop the connection solution to ensure the interoperability between SILABFA and FAO-Event Mobile Application (FAO-EMA-I) and assessment of "e-gov" solution, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Tanzania. Customization of SILABFA for Data analysis and Epidemiology Unit needs.</i>				
Staff time for 2 IZSAM experts				
Travel from Italy to Tanzania (Air, economy class)	1,300.00	Ticket	2	2,600.00
Daily allowance (Dar Es Salaam)	200.00	Person-day	14	2,800.00
Fee	207.00	Person-day	14	2,898.00
SUB-TOTAL COST				8,298.00
<i>Customization of SILABFA to new requirements and provision of maintenance and Helpdesk</i>				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 2				12,438.00
<i>Under Output/outcome 3: Completion of installation in the Laboratoire Nationale Vétérinaire (LANAVET) (Garoua and Yaoundé) in Cameroon to strengthen capacity for better sample management and analysis and connection with other systems established and assessment of Epidemiology Unit needs.</i>				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
<i>Completion of installation in Laboratoire Nationale Vétérinaire (LANAVET) annex of Yaoundé and connection to LANAVET Garoua main server, provide support in using SILAB data for analysis and improvement of the laboratories activities in Cameroon. Assessment of Epidemiology Unit needs</i>				
Staff time for 2 IZSAM experts				
Travel from Italy to Cameroon (Air, economy class)	1,200.00	Ticket	2	2,400.00
Daily allowance (Yaoundé)	189.00	Person-day	14	2,646.00
Fee	207.00	Person-day	14	2,898.00
SUB-TOTAL COST				7,944.00
<i>Customization of SILABFA to new requirements and provision of maintenance and Helpdesk</i>				
Staff time for 3 IZSAM experts				

Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 3				12,084.00
<i>Under Output/outcome 4: Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend to one peripheral laboratory (Herna) in Ethiopia to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.</i>				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
<i>Completion of installation in the National Animal Health Diagnostics and Investigations Center (NAHDIC) and in three peripheral laboratories (Asella, Kombolcha, Semera) and extend the usage of SILABFA in one peripheral laboratory (Herna) in Ethiopia, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Ethiopia. Customization of SILABFA for Data analysis and Epidemiology Unit needs</i>				
Staff time for 2 IZSAM experts				
Travel from Italy to Ethiopia (Air, economy class)	800.00	Ticket	2	1,600.00
Daily allowance (Addis Ababa)	178.00	Person-day	21	3,738.00
Fee	207.00	Person-day	21	4,347.00
SUB-TOTAL COST				9,685.00
<i>Customization of SILABFA to new requirements and provision of maintenance and Helpdesk</i>				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
<i>Analyse SILAFA interoperability with Ministry of Agriculture surveillance systems (ADNIS and DOVAR) and SILABFA customization for Epidemiology Unit needs</i>				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	30	6,210.00
SUB-TOTAL COST				6,210.00
TOTAL COSTS Output/outcome 4				20,035.00
<i>Under Output/outcome 5: Completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend to one new peripheral Laboratory in Kenya to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs.</i>				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>

Completion of installation in the Central Veterinary Laboratory (CVL-HQ, Kabete and CVL-FMD Embakasi) and extend the usage of SILABFA in one new peripheral laboratory (either Garissa, Marikani, or Eldoret), provide support in using SILABFA data for analysis and improvement of the laboratories activities in Kenya. Customization of SILABFA for Data analysis and Epidemiology Unit needs. Eastern Africa Regional Laboratory Network (EARLN) inter-connection using SILABFA				
Staff time for 2 IZSAM experts				
Travel from Italy to Kenya (Air, economy class)	1,200.00	Ticket	2	2,400.00
Daily allowance (Nairobi)	233.00	Person-day	21	4,893.00
Fee	207.00	Person-day	21	4,347.00
SUB-TOTAL COST				11,640.00
Customization of SILABFA to new requirements and provision of maintenance and Helpdesk.				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 5				15,780.00
Under Output/outcome 6: Completion of installation in the LNERV in Senegal to strengthen capacity for better sample management and analysis and connection with other systems established and customization for Epidemiology Unit needs				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
Conduct a backstopping visit for the completion of installation in the Laboratoire National de l'Elevage et de Recherches Vétérinaires (LNERV) in Senegal, provide support in using SILABFA data for analysis and improvement of the laboratories activities in Senegal. SILABFA customization for Epidemiology Unit needs				
Staff time for 2 IZSAM experts				
Travel from Italy to Senegal (Air, economy class)	1,000.00	Ticket	2	2,000.00
Daily allowance (Dakar)	231.00	Person-day	15	3,465.00
Fee	207.00	Person-day	15	3,105.00
SUB-TOTAL COST				8,570.00
Customization of SILABFA to new requirements and provision of maintenance and Helpdesk				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
Analysis of technical interoperability of SILABFA with Kobotoolbox				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00

TOTAL COSTS Output/outcome 6					16,850.00
<i>Under Output/outcome 7: Completion of installation in the Laboratoire National d'Appui au Developpement Agricole-Laboratoire Central Veterinaire de Bingerville (LANADA-LCVB) in Côte d'Ivoire to strengthen capacity for better sample management and analysis and connection with other systems established and assist in the development of a national animal Disease management system.</i>					
Item	Unit cost EUR	Unit	No.	Sub-total EUR	
<i>Conduct a backstopping visit for the completion of installation in the Laboratoire National d'Appui au Developpement Agricole-Laboratoire Central Veterinaire de Bingerville (LANADA-LCVB) in Côte d'Ivoire and SILABFA customization for Epidemiology Unit needs</i>					
Staff time for 2 IZSAM experts					
Travel from Italy to Ivory Coast (Air, economy class)	1,200.00	Ticket	2	2,400.00	
Daily allowance (Abidjan)	182.00	Person-day	28	5,096.00	
Fee	207.00	Person-day	28	5,796.00	
SUB-TOTAL COST				13,292.00	
<i>Animal Disease management: system design assessment and support</i>					
Staff time for 3 IZSAM experts					
Fee	207.00	Person-day	40	8,280.00	
SUB-TOTAL COST				8,280.00	
<i>Customization of SILABFA to new requirements and provision of maintenance and Helpdesk</i>					
Staff time for 3 IZSAM experts					
Fee	207.00	Person-day	20	4,140.00	
SUB-TOTAL COST				4,140.00	
<i>Develop the connection solution to ensure the interoperability between SILABFA and FAO-EMA-I</i>					
Staff time for 2 IZSAM experts					
Fee	207.00	Person-day	7	1,449.00	
SUB-TOTAL COST				1,449.00	
TOTAL COSTS Output/outcome 7					27,161.00
<i>Under Output/outcome 8: Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA.</i>					
Item	Unit cost EUR	Unit	No.	Sub-total EUR	
<i>Establish the basic LIMS (SLIMS) in central and peripheral laboratories in countries that do not have installed SILABFA: Participation (as a trainer) in regional training organized by FAO to train participants on the use of SLIMS</i>					
Staff time for 1 IZSAM expert					
Travel from Italy to Ghana (Air, economy class)	800.00	Ticket	1	800.00	
Daily allowance (Accra)	211.00	Person-day	5	1,055.00	

Fee	207.00	Person-day	5	1,035.00
SUB-TOTAL COST				2,890.00
Feasibility study to develop a connection solution to ensure the interoperability between SLIMS and FAO-EMA-I				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	7	1,449.00
SUB-TOTAL COST				1,449.00
Customization of SLIMS to new requirements and provision of maintenance and Helpdesk				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 8				8,479.00
Output/outcome 9: Development of new Technical Solution for SILABFA including interoperability with other IT systems:				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
Study of preliminary needs and prerequisites for interoperability with LINA: System design				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 9				4,140.00
Output/outcome 10: SILABFA and SLIMS customized for AMR including customization for Epidemiology Unit needs				
<i>Item</i>	<i>Unit cost EUR</i>	<i>Unit</i>	<i>No.</i>	<i>Sub-total EUR</i>
Study of prerequisites and first module design for SILABFA and basic LIMS (SLIMS) customization for AMR including for Epidemiology Unit needs				
Staff time for 3 IZSAM experts				
Fee	207.00	Person-day	20	4,140.00
SUB-TOTAL COST				4,140.00
TOTAL COSTS Output/outcome 10				4,140.00
GRAND TOTAL				129,387.00

6. **Responsible Officer**

The Responsible Officer named in the Agreement, Dr Béatrice Mouillé, has been designated by the Budget Holder responsibility to manage and monitor the proper implementation of the Agreement on behalf of FAO and to certify to the Budget Holder that the terms of the Agreement have been satisfactorily met and that appropriate payments can be made.

7. Reimbursements

The Service Provider will reimburse FAO for any overpayments that may have been effected or excess funds, which may remain after completion of the services/work.

