



सत्यमेव जयते

GOVERNMENT OF ASSAM

STRATEGY PAPER

ON UP-GRADATION /
SETTING UP DEPARTMENTAL LABORATORIES OF
A. H. & VETERINARY DEPARTMENT, ASSAM



ANIMAL HUSBANDRY
& VETERINARY DEPARTMENT
Government of Assam

ANIMAL HUSBANDRY AND VETERINARY DEPARTMENT

ASSAM::GUWAHATI-781003

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STRATEGY PAPER ON UP-GRADATION / SETTING UP DEPARTMENTAL LABORATORIES OF A. H. & VETERINARY DEPARTMENT, ASSAM

Background

Animal disease diagnosis is considered to be an important issue in the country due to its implication for animal and poultry wealth, which is one of the most important sources of income and means of livelihood of the farming community. Assam lies in a biological hot spot and the region shares a major proportion of international boundary which adds to the risk of exotic diseases that are considered the most important problem facing this wealth. It is also necessary to accelerate the evaluation of the level of animal disease diagnostic laboratories in order to ensure the safety and protection of human food as one of the top priorities. The role of laboratories in protection of animal and poultry industry from endemic and exotic diseases, quick, efficient and accurate diagnosis of the causative agents and advocating and administering control measures cannot be denied.

The production of quality animal vaccine is another aspect to be performed by the department. The Institute of Veterinary Biological is performing this task. However, this vaccine production laboratory needs to be upgraded to GMP standards. For making it GMP compliant, team of specialists in the field of standardization has to be employed to work out the DPR and its execution in a turnkey basis. The GMP accreditation will enable the institute to market its products as there is huge market in NE India for the same. This eventually will lead to self sustainability of the institute in near future

The Regional Feed Testing Laboratory is an essential part for testing the feed standards. It is a general complain of the farmers that the feed standards are not uniform for various companies and differs from batch to batch. Therefore revival of this laboratory is essential so that the feed quality assurance can be put in to place and concern of the farmers can be effectively addressed. A scheme for revival of the laboratory is already been approved under RKVY, however, there are certain other components which are not covered under RKVY but needs to be addressed. These additional components are also incorporated.

Presently the state has experienced economic growth and development, and with increased income, consumers became aware about quality products. Livestock products are known to be a good breeding ground for microbial flora and thus likely to become an important source of food borne diseases. Most of the known health burden of food borne disease is caused by microbiological, parasitological, chemical, adulterants, antimicrobial residues and toxins in fresh animal source foods sold in informal markets. Presently no laboratory in the state under the Animal Husbandry & Veterinary Department is equipped to test the quality of livestock products but if any problem arises in regard to quality and safety of livestock products the department is held responsible. Therefore, implementation of Food Safety and Standards needs to be maintained in every districts of Assam. Under the World Bank sponsored APART project the AHVD department has decided to strengthen 7 District Diagnostic Laboratories (DDL) as food safety laboratory in addition to their normal role of disease diagnosis. This proposal also incorporated the remaining 11 laboratories to be equipped and to act as food safety laboratories in addition to their normal activities. As the state has limited capacity on food safety works, the department is seeking technical help from the International Livestock Research Institute (ILRI) to support the department in strengthening the laborites and to build capacity of the laboratory staff for doing the food safety works.

The activities and protocols followed by the laboratories along with data management also need an electronic platform so that any interested stakeholder can access the data which is also essential for building the confidence level of the consumers. Therefore an integrated data management tool to address the tracking of diseases, post mortem management, laboratory management etc. is also integrated with this proposal.

Brief Overview of veterinary laboratories

There are 20 veterinary laboratories in Assam (excluding the 3 labs in 6th Schedule districts). They are

SI No	Name & Location	Major function	Present status
State level laboratories			
1	Institute of Veterinary Biologicals, Khanapara, Guwahati	Production, procurement and distribution of animal vaccines	Functioning but needs to be made GMP compliant
2	Animal Health Centre, Khanapara, Guwahati	Referral Laboratory for diagnosis of animal diseases	Functioning and needs to be upgraded to ISO standards
3	Regional Feed Testing Laboratory, Khanapara, Guwahati	Quality testing of animal feed (Commercial & others)	Presently non functional and needs to be revived
District Laboratories (DDL)			
4	DDL, Chenikuthi, Guwahati	Diagnosis of animal diseases, outbreak investigation, addressing control strategies for biological hazards, food safety testing for food of animal origin	Needs intervention for up-gradation of infrastructure and related issues, skill up-gradation of manpower, hiring of skilled manpower in contractual basis, quality assurance
5	DDL, Gauripur, Dhubri		
6	DDL, Nagaon		
7	DDL, Tezpur, Sonitpur		
8	DDL, Lakhimpur		
9	DDL, Jorhat		
10	DDL, Silchar, Cachar		
11	DDL, Dibrugarh		
12	DDL, Diphu, KA		
13	DDL, Barpeta		
14	DDL, Nalbari		
15	DDL, Mangaldoi, Darrang		
16	DDL, Morigaon		
17	DDL, Sivasagar		
18	DDL, Golaghat		
19	DDL, Karimganj		
20	DDL, Goalpara		

Objectives of the laboratories:

- Produce/ procure and distribute vaccines (Institute of veterinary Biologicals).
- Provide referral and consultancy services to the district diagnostic laboratories, perform specialized tests, collect and maintain a data bank for important diseases and updating it on a periodical basis (Animal Health Centre/ NERDDL)
- Qualitative testing animal feed for different ingredients and nutrients and anti-nutritional factors and toxins (RFTL).
- The district level laboratories will function for Disease diagnosis, Outbreak investigation, Quality testing of food of animal origin, Disease related disaster management, maintenance of location wise disease data under the jurisdiction of the labs with regular up-gradation.

Present status

The present status as described by laboratory officers in the meeting held in 8th August/18 clearly illustrated that the infrastructural facilities, availability of minimum essential equipments, chemicals, diagnostics, glass/ plastic wares and availability of working staff are key issues. The skill up-gradation of the laboratory officers and staff is also necessary for making the laboratories functional for true delivery of services to the mass.

At present, most of the District Diagnostic Laboratories (DDL), only performing tests for fecal parasitology, post mortem examinations and microscopic investigations of urine/ blood samples. All the samples needing to be tested for microbiological/ pathological or serological analysis are referred to Animal Health Centre. None of the DDL in the state is performing food safety work. Therefore the needs of testing microbial, physical, chemical/ adulterants, antimicrobial and pesticide residue, microbial drug resistance testing are to be developed.

Furthermore, the laboratories are working in isolation without any interface for sharing experiences and all reporting are made in hard copies which are difficult to manage and interpreted. Moreover, problem of non reporting or under-reporting along with timely receipt of report is also an issue. Therefore, there is need of development of an IT platform for better management of the laboratories in terms of data management and quality assurance.

Considering the above background a comprehensive plan of action had been prepared for up-gradation and restructuring the existing laboratories of Assam.

Strategies for improvement

- All laboratories will be modernized with development of infrastructure and equipping with necessary instruments, equipment, appliances and other logistics.
- SOP for all the activities regarding collection, dispatch, preservation, testing, data recording and reporting will be developed as per protocol defined by national and international standards.
- Development of protocol for meeting the recurring expenditure of the laboratories.
- Development of a laboratory policy.
- Skill up-gradation trainings (customized) will be conducted at yearly interval coupled with refresher training as per need.
- Hands on training will be organized in situ in all laboratories.
- Engagement of skilled persons on contractual basis in the laboratories where no defined manpower is deployed.
- Quality assurance and quality audit will be put into place by incorporating the norms for ISO certification and integration of IT platform for management.

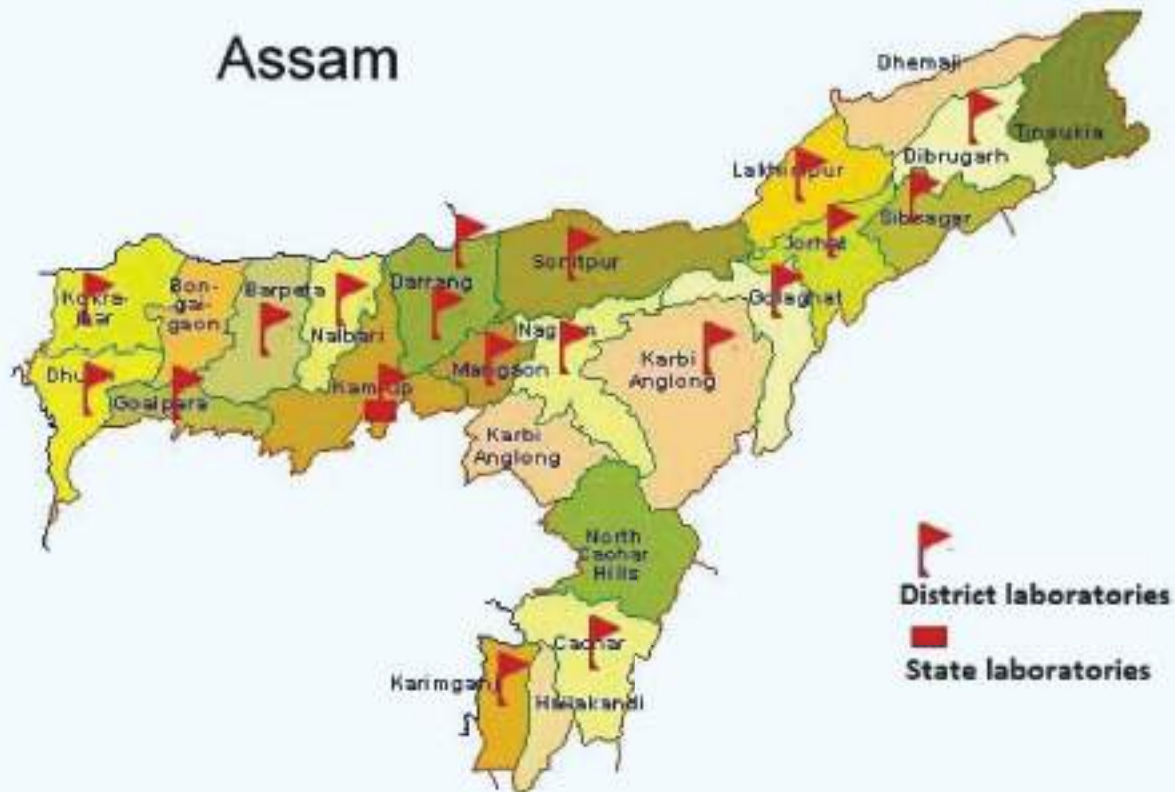
Components of improvements

1. Development of infrastructure
2. Procurement of equipment
3. Procurement of consumables (Chemicals, media, glass/plastic wares, diagnostics, reagents etc.
4. Development of a Data management tool (IT platform)
5. Skill development, training and Contractual Manpower deployment
6. Quality audit by Hiring of consultant for ISO certification

STRATEGIES FOR UP-GRADATION OF DEPARTMENTAL LABORATORIES of A. H. and VETERINARY DEPARTMENT, ASSAM

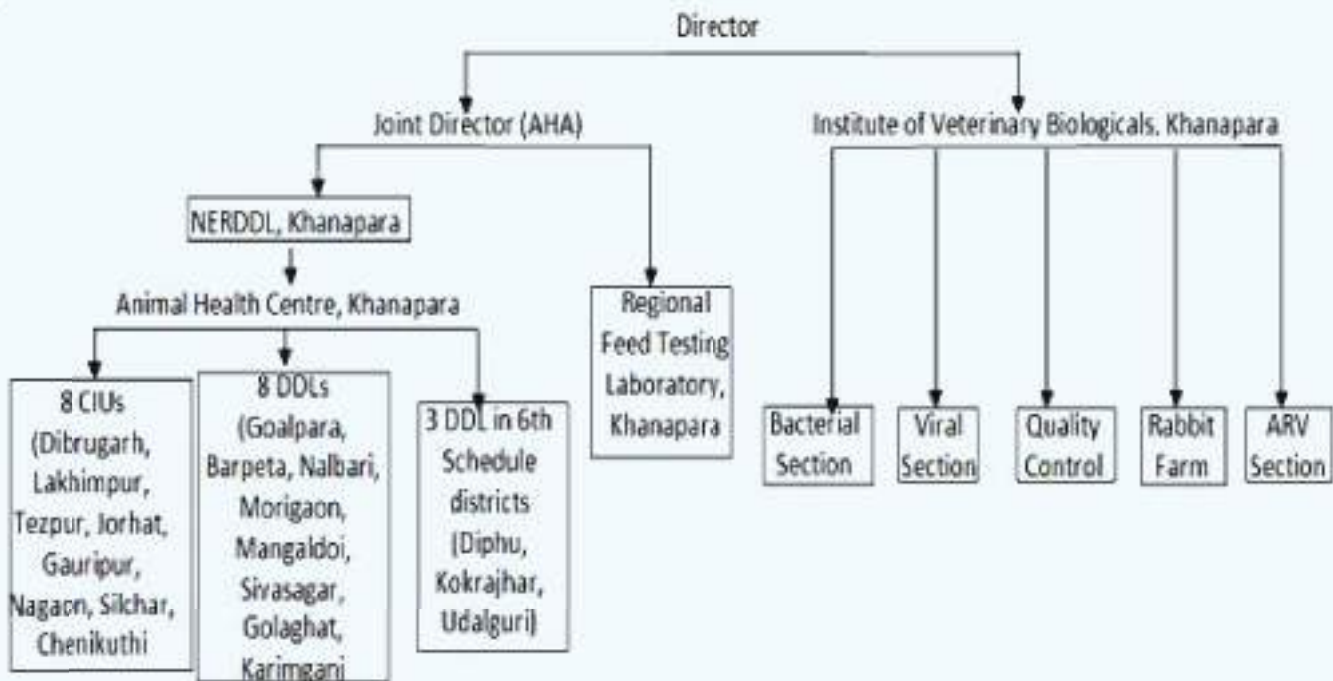
Proposed location of the units : 16 (sixteen) existing district laboratories (Gauripur, Nagaon, Tezpur, North Lakhimpur, Jorhat, Silchar, Dibrugarh, Barpeta, Nalbari, Mangaldoi, Morigaon, Sivasagar, Karimganj, Goalpara, Golaghat and Chenikuthi) and 3 (three) state laboratories (Institute of Veterinary Biologicals, Khanapara Animal Health Centre, Khanapara, Regional Feed Testing Laboratory, Khanapara) and construction of new laboratories at five other districts (Majuli, Tinsukia, Dhemaji, Biswanath and Hojai)

Location Map of the existing laboratories:



Implementing agency : A. H. and Veterinary Department, Govt. of Assam in collaboration with College of Veterinary science (Assam Agricultural University) and International Livestock Research Institute (ILRI)

Organogram of laboratories



Veterinary Labs, Food safety and FSSAI (Food safety and Standards Authority of India)

- Food safety is an emerging issue and various complaints are regularly received by the department about adulteration of food of animal origin
- The Food Safety and Standards Authority of India (FSSAI) consolidate various acts & orders that can handle food related issues.
- FSSAI has laid down standards for various food items to ensure availability of safe and wholesome food for human consumption.
- Testing of food to instill confidence amongst consumers and discourages unscrupulous trading of adulterated food items thereby providing direct benefit to genuine producers/ traders
- As, number and distribution of food testing labs in the state is grossly inadequate, therefore, all the DDLs of Assam is planned to be equipped with the testing facilities for the food of animal origin.
- As a part of the program, seven laboratories are initially taken up under funding from APART with technical support from ILRI.

Collaboration with ILRI

- ILRI is an international research institute with its headquarters in Kenya.
- The International Livestock Research Institute (ILRI) works with partners worldwide to enhance the roles that livestock play in food security and poverty alleviation.
- ILRI's mission is to improve food and nutritional security and to reduce poverty in developing countries through research for efficient, safe and sustainable use of livestock—ensuring better lives through livestock.

ILRI's strategic objectives are:

- To develop, test, adapt and promote science-based practices that—being sustainable and scalable—achieve better lives through livestock.

- To provide compelling scientific evidence in ways that persuade decision-makers—from farms to boardrooms and parliaments—that smarter policies and bigger livestock investments can deliver significant socio-economic, health and environmental dividends to both poor nations and households.
- To increase capacity among ILRI’s key stakeholders to make better use of livestock science and investments for better lives through livestock.
- The department had entered with an agreement with ILRI for technical support to seven field labs in regard to undertake food safety issues for food of animal origin.
- The seven Labs that are taken under APART with technical support from ILRI are: (1) Lakhimpur (2) Jorhat (3) Tezpur (4) Chenikuthi (5) Barpeta (6) Mangaldoi and (7) Silchar

Phase wise plan of up-gradation/ rejuvenation of Laboratories with proposed financial outlay

Phase	Name of the laboratories	Description of works	Estimated cost (L Rs)
I (2019-2020)	Institute of Veterinary Biologicals	Works related to GMP certification and consultancy	33.00
	Regional Feed testing Laboratory	Up-gradation and rejuvenation works	64.50
	Animal Health Centre	Works related to Necropsy section and consultancy	35.00
	Lakhimpur, Jorhat, Tezpur, Chenikuthi, Barpeta, Mangaldoi and Silchar (Total 7 laboratories)	Up-gradation and rejuvenation, procurement of equipments, consumables, furniture, engagement of contractual manpower etc	158.82
	Skill up gradation trainings	For Veterinary officers and laboratory technicians	8.68
		Total	300.00
II (2020-2012)	Karimganj, Gauripur, Golaghat, Sivasagar, Goalpara	Up-gradation and rejuvenation, procurement of equipments, consumables, furniture, engagement of contractual manpower etc 5 Nos of laboratories	259.68
	Maintenance, contractual manpower deployment and monitoring	Laboratory and equipments of Phase-I and monitoring of activities	25.00
	Skill Upgradation trainings	For Veterinary officers and laboratory technicians	9.00
		Total	293.68
III (2021-2022)	Nalbari, Morigaon, Nagaon, Dibrugarh	Up-gradation and rejuvenation, procurement of equipments, consumables, furniture, engagement of contractual manpower etc 4 laboratories	174.72
	Maintenance, contractual manpower deployment and monitoring	Laboratory and equipments and monitoring of activities	30.00
	Skill Upgradation trainings	For Veterinary officers and laboratory technicians	9.50
		Total	214.22
IV (2022-2023)	Majuli Tinsukia, Dhemaji,	New Proposal for Construction and commissioning	150.00
	Maintenance, contractual manpower deployment and monitoring	Laboratory and equipments and monitoring of activities	35.00
	Skill Upgradation trainings	For Veterinary officers and laboratory technicians	9.50
		Total	194.50
V (2023-2024)	Hojai, Biswanath	New Proposal for Construction and commissioning	100.00
	Maintenance, contractual manpower deployment and monitoring	Laboratory and equipments and monitoring of activities	40.00
	Skill Upgradation trainings	For Veterinary officers and laboratory technicians	10.00
		Total	150.00
		Grand Total for five year outlay	1152.40

The details of items including list of equipments, consumables to be procured are annexed (Page-61-78)

**Laboratories proposed to be taken up in
the First Phase
(2019-2020)**

Functions and requirements of the laboratories



I. Institute of Veterinary Biologicals, Khanapara

This institute is presently having two wings i.e bacteriological and virological vaccine production units having a production capacity of vaccines as follows:

Name of the vaccine	Annual Production capacity (million doses)	Prevailing Market price (Rs)	Production cost at the institute (Rs)
Haemorrhagic septicaemia	16.00	4.00	2.28
Black Quarter	16.00	4.00	2.43
Anthrax	12.00	5.00	1.57
Swine Fever	0.60	12.00	5.53
R2B	45.00	0.45	0.37
F1	40.00	0.40	0.37
Duck Plague	30.00	0.55	0.51

The IVB is functioning and is producing vaccines as per requirement of the state for HS, BQ, Anthrax, RD, DP in traditional way.

- Due to scarcity of rabbits of desired quality, the production of SF is not as per demand.
- There is huge market potential for its products in entire NE region.
- There is urgent need for modernization of the institute and to upgrade to make it GMP compliant, so that its products can become market compatible and the lab can be made self sustainable. To engage an expert consultant group for developing a DPR and allowing them to supervise the tasks related to renovation, standardization, automation in a turnkey basis for making it GMP compliant a consultancy fee of **Rs. 25.00 Lakh** will be required in the first year.
- Apart from the consultancy there is need to have a space to be renovated to accommodate cell culture vaccine production with an estimated cost of **Rs. 8.00 lakh** as per estimates shown hereunder

II. Animal Health Centre, Khanapara



The Department of Animal Husbandry and Dairying, Govt. of India under the scheme “*Animal Disease Management & Regulatory Medicine*” has identified the Animal Health Centre, Animal Husbandry and Veterinary Department, Government of Assam, Khanapara, Guwahati-781022 to function as Regional Disease Diagnostic Laboratory for the North Eastern Region (Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram and Tripura). The functional fund for running the day to day activities of the lab is provided as **100% assistance** by Govt. Of India and only the salary part is borne by Govt. of Assam

1. The laboratory was established with **mandates** of:
 - a. Provide referral services to other laboratories located within the North Eastern states of India
 - b. To undertake measures for control and containment of animal diseases of public health, economic as well as global importance
 - c. To train scientists of various NE states in the art of diagnosis & control of animal diseases,
 - d. To interact with the officials by holding meetings of North Eastern states at regular intervals for animal health problems and animal disease data sharing.

NERDDL (North Eastern Regional Disease Diagnostic laboratory) is having six different diagnostic units viz. Bacteriology and Mycology, Parasitology, Pathology, Toxicology, virology and immunology, and molecular diagnostic laboratory. The monthly intake capacity of samples varies from 2000- 3000.

- The Animal Health Centre is operating under NERDDL and is the referral laboratory for all district diagnostic laboratories of Assam.
- This laboratory has collaboration with
 - ADMaC, Khanapara
 - HSADL, Bhopal
 - IVRI, IzzatNagar
 - NIV, Pune
- The funding for procurement of equipments, their maintenance, procurement of consumables, hiring of manpower, holding meetings and trainings etc. are provided by the Central Government as 100% grant.
- The present need is to develop an approach road to the Necropsy room from the main road for easy transportation of carcasses, development of low lying areas, waste disposal system and repair of WC and to hire consultancy services for NABL accreditation with an estimated cost of **Rs. 30.00 L** (as per estimates) + **5.00 Lakh** (for consultancy services)

The report for the estimate prepared for civil works is as follows:

III. Regional Feed Testing Laboratory, Khanapara



Outside view of the RFTL



Inside view of the RFTL laboratory

This unit act as feed testing unit for animal feeds and can handle all the commercial animal feed and feed supplied from various small scale feed mills for their qualitative analysis. Mostly feeds are referred by rural farmers for quality assurance which is directly related to production potential of farm animals.

- The RFTL act as feed testing unit for animal feeds and can handle all the commercial animal feed and feed supplied from various small scale feed mills for their qualitative analysis.
 - Mostly feeds are referred by rural farmers for quality assurance which is directly related to production potential of farm animals.
 - Farmers use to raise this issue in almost all the interactive meetings organized by the department
 - Therefore RFTL needs to be modernized and the building has to be renovated on priority basis.

The estimates made for remodeling and rejuvenation of the Regional Feed Testing Laboratory with an estimated cost of Rs. 255.00 Lakh is already sanctioned under RKVY.

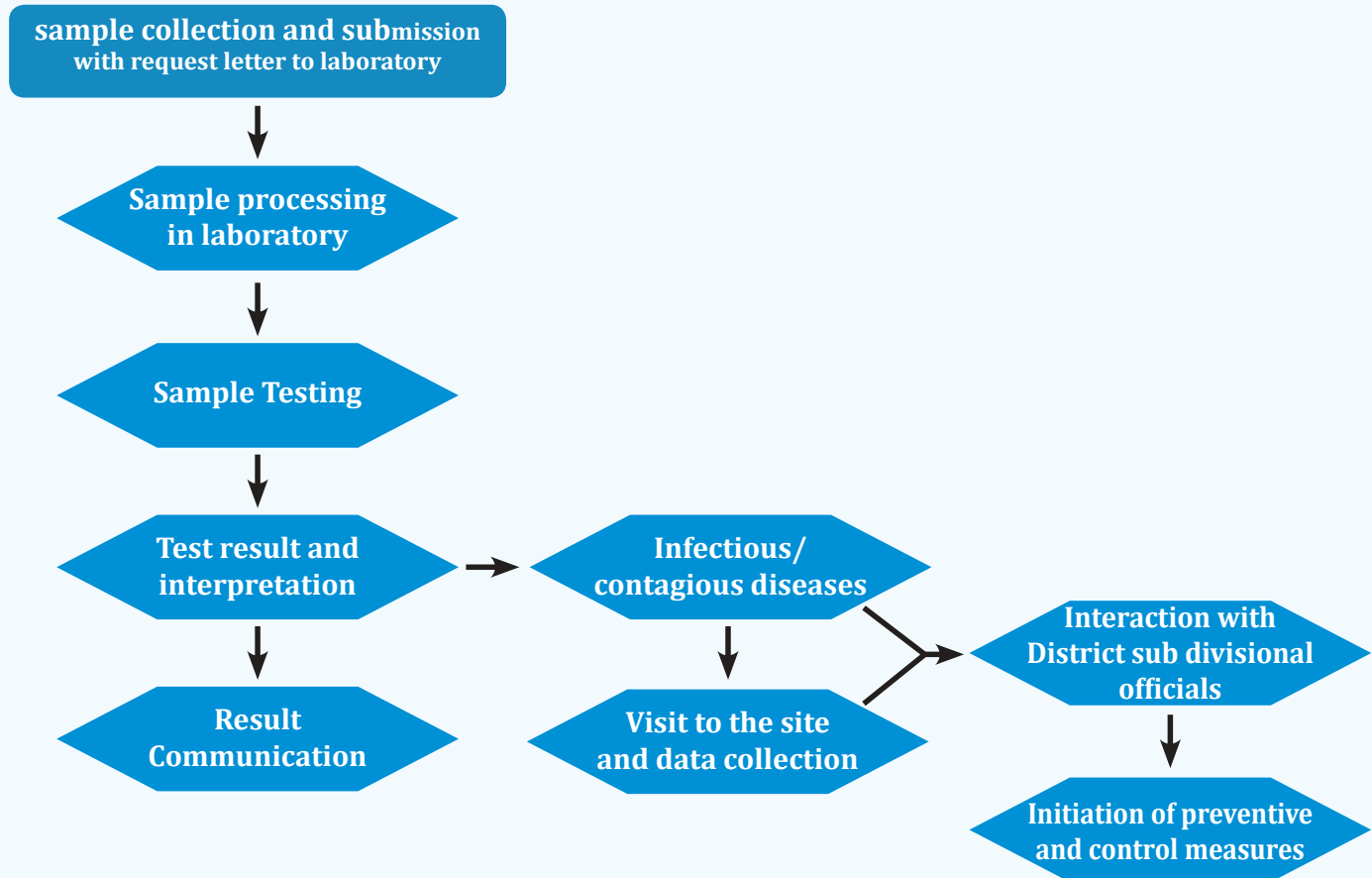
However, there will be need of other activities which were not covered under the RKVY with an estimated cost of **Rs. 64.50 Lakh**. The report of the estimate is enclosed hereunder.

IV. xix District level laboratories:

These (16 units) are small (having one core lab room, one outer lab room, one store room, one post mortem unit) but integrated laboratories capable of handling various types of including bacteriological, parasitological, food safety, and immunological samples. These laboratories can handle 100 samples per day.

Flow chart for sample testing and processing in district level laboratories

Most of the district laboratories need repair/ remodeling, all need in house waste disposal system and skill upgradation trainings for the persons manning them. In the first phase 7 laboratories will be taken up for renovation which will also be covered under APART for making necessary provision of equipments and consumables to enable them to undertake activities related to food safety for food of animals origin.



The components of development can broadly be grouped into

1. Remodeling/ renovation of infrastructure
2. Procurement of equipments, furniture and consumables
3. Skill upgradation trainings
4. Encompassing under “DHENU” software

1. District Diagnostic Laboratory, North Lakhimpur



The photographic evidence shows the importance of rejuvenation of the laboratory. Therefore an estimate was prepared for repair of the laboratory incorporating the waste disposal.

Manpower position:

There are sanctioned posts of Assistant Research Officer (1), Veterinary Officer (1), Technical Assistant (1) and one grade-IV. All the above posts are now filled up except for the Grade-IV post

Requirement:

- | | |
|---|----------------|
| 1. Infrastructure development: | = Rs. 20.00 L |
| 2. Equipment and consumables: | = Rs. 31.92 L |
| 3. Engagement of a contractual grade-IV for 11 months @ Rs. 0.15 L/ month | = Rs. 1.65 L |
| 4. Total requirement | = Rs. 53.57 L |
| 5. Fund sanctioned under APART | = Rs. 20.00 L. |
| 6. Additional requirement | = Rs. 33.57 L |

2. District Diagnostic Laboratory, Jorhat



This laboratory is facing problems due to absence of a post mortem room and store room. The officer's sitting rooms needs renovation and repair. The waste disposal facility is absent and electrical rewiring is needed.

Manpower position:

There are sanctioned posts of Assistant Research Officer (1), Veterinary Officer (1), Technical Assistant (1) and one grade-IV. All the above posts are now filled up.

Requirement:

- | | |
|--------------------------------|----------------|
| 1. Infrastructure development: | = Rs. 14.50 L |
| 2. Equipment and consumables: | = Rs. 30.86 L |
| 3. Total requirement | = Rs. 45.36 L |
| 4. Fund sanctioned under APART | = Rs. 20.00 L. |
| 5. Additional requirement | = Rs. 25.36 L |

3. District Diagnostic Laboratory, Tezpur



This laboratory is facing problems due to absence of a separate post mortem room. The officer's sitting room's needs renovation and repair. The waste disposal facility is absent and electrical rewiring is needed.

Manpower position:

There are sanctioned posts of Assistant Research Officer (1), Veterinary Officer (2), Technical Assistant (1) and one grade-IV. All the above posts except Grade-IV are now filled up.

Requirement:

- | | |
|---|----------------|
| 1. Infrastructure development: | = Rs. 4.00 L |
| 2. Equipment and consumables: | = Rs. 34.02 L |
| 3. Engagement of a contractual grade-IV for 11 months @ Rs. 0.15 L/ month | = Rs. 1.65 L |
| 4. Total requirement | = Rs. 39.67 L |
| 5. Fund sanctioned under APART | = Rs. 20.00 L. |
| 6. Additional requirement | = Rs. 19.67 L |

4. District Diagnostic Laboratory, Cheikuthi



The waste disposal facility is absent in this laboratory and needs minor repair works as well as electrical rewiring.

Manpower position:

There are sanctioned posts of Assistant Research Officer (1), Veterinary Officer (2), Technical Assistant (1) and two grade-IV. All the above posts are now filled up.

Requirement:

1. Infrastructure development:	=	Rs. 2.50 L
2. Equipment and consumables:	=	Rs. 31.92 L
3. Total requirement	=	Rs. 34.42 L
4. Fund sanctioned under APART	=	Rs. 20.00 L.
5. Additional requirement	=	Rs. 14.42 L

5. District Diagnostic Laboratory, Barpeta



The approach road to this laboratory becomes inundate every year during rainy season. There is need of minor repair and creation of waste disposal facility.

Manpower position:

There are no sanctioned posts to man the laboratory and therefore this laboratory could not function properly.

Requirement:

1. Infrastructure development:	=	Rs. 4.00 L
2. Equipment and consumables:	=	Rs. 35.92 L
3. Engagement of three contractual persons @ Rs. 0.80 L/ month for 11 months=	=	Rs. 8.80 L
4. Total requirement	=	Rs. 48.72 L
5. Fund sanctioned under APART	=	Rs. 20.00 L.
6. Additional requirement	=	Rs. 28.72 L

6. District Diagnostic Laboratory, Mangaldoi



The laboratory is newly constructed and no facility is created till date. There is need of minor repair and creation of waste disposal facility.

Manpower position:

There are no sanctioned posts to man the laboratory and therefore this laboratory could not function properly.

Requirement:

- | | |
|---|----------------|
| 1. Infrastructure development: | = Rs. 0.50 L |
| 2. Equipment and consumables: | = Rs. 35.92 L |
| 3. Engagement of three contractual persons @ Rs. 0.80 L/ month for 11 months= | Rs. 8.80 L |
| 4. Total requirement | = Rs. 45.22 L |
| 5. Fund sanctioned under APART | = Rs. 20.00 L. |
| 6. Additional requirement | = Rs. 25.22 L |

7. District Diagnostic Laboratory, Silchar



The laboratory is newly re-constructed and some of the basic facility is created. There is need of minor electrical works and creation of waste disposal facility.

Manpower position:

There are sanctioned posts of Assistant Research Officer (10, Veterinary Officer (2), laboratory Assistant (2) and grade-IV (2).

Requirement:

- | | |
|--------------------------------|----------------|
| 1. Infrastructure development: | = Rs. 1.00 L |
| 2. Equipment and consumables: | = Rs. 30.86 L |
| 3. Total requirement | = Rs. 31.86 L |
| 4. Fund sanctioned under APART | = Rs. 20.00 L. |
| 5. Additional requirement | = Rs. 11.86 L |

**Laboratories proposed
to be taken up in the
SECOND PHASE
2020-2021**

1. District Diagnostic Laboratory, Karimganj



The condition of the laboratory is pitiable. As there is no office complex for the District Veterinary Officer therefore the office is functioning from the laboratory building. No diagnostic activities could be undertaken in the laboratory. Moreover there is no boundary wall around. These needs are to be addressed.

Manpower position:

There are no sanctioned posts and proposal for inducting 3 persons (Veterinary Officer-1, Laboratory Assistant-1 and grade-IV-1) on contractual basis for 11 months duration can ease the situation.

Requirement:

1. Infrastructure development:	= Rs. 28.00 L
1. Equipment and consumables:	= Rs. 35.92 L
2. Salary of contractual manpower	= Rs. 8.80 L
3. Total requirement	= Rs. 72.72

2. District Diagnostic Laboratory, Gauripur



The laboratory is functioning with minimum standards. There is need to develop the approach road, electrical fittings and fixing and construction of a postmortem room also with creation of facilities for bio waste disposal.

Manpower position:

There is 4 sanctioned posts viz. Assistant Reserch Officer (1), Veterinary Officer (1), Laboratory Technician (1) and one grade-IV.

Requirement:

- | | |
|--------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 15.00 L |
| 2. Equipment and consumables: | = Rs. 30.86 L |
| 3. Total requirement | = Rs. 45.86 L |

3. District Diagnostic Laboratory, Golaghat



The laboratory is in workable condition. However, there is need of a store room and a post mortem shed. The need of waste disposal system is also required. The laboratory is equipped to perform basic activities.

Manpower position:

There are no sanctioned posts and proposal for inducting 3 persons (Veterinary Officer-1, Laboratory Assistant-1 and grade-IV-1) on contractual basis for 11 months duration can ease the situation.

Requirement:

- | | |
|-----------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 4.00 L |
| 2. Equipment and consumables: | = Rs. 30.86 L |
| 3. Salary of contractual manpower | = Rs. 8.80 L |
| 4. Total requirement | = Rs. 43.66 L |

4. District Diagnostic Laboratory, Sivasagar



The laboratory needs renovation with provision for cubical, store room and a post mortem shed. The need of waste disposal system is also required. The laboratory is yet to be equipped to perform basic activities.

Manpower position:

There are no sanctioned posts and proposal for inducting 3 persons (Veterinary Officer-1, Laboratory Assistant-1 and grade-IV-1) on contractual basis for 11 months duration can ease the situation.

Requirement:

- | | |
|-----------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 5.00 L |
| 2. Equipment and consumables: | = Rs. 35.92 L |
| 3. Salary of contractual manpower | = Rs. 8.80 L |
| 4. Total requirement | = Rs. 49.72 L |

5. District Diagnostic Laboratory, Goalpara



The laboratory needs renovation with provision for cubical. The need of waste disposal system is also required. The laboratory is yet to be equipped to perform basic activities.

Manpower position:

There are no sanctioned posts and proposal for inducting 3 persons (Veterinary Officer-1, Laboratory Assistant-1 and grade-IV-1) on contractual basis for 11 months duration can ease the situation.

Requirement:

- | | |
|-----------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 3.00 L |
| 2. Equipment and consumables: | = Rs. 35.92 L |
| 3. Salary of contractual manpower | = Rs. 8.80 L |
| 4. Total requirement | = Rs. 47.72 L |



**Laboratories proposed
to be taken up in the
THIRD PHASE
(2021-2022)**

1. District Diagnostic Laboratory, Nalbari



The laboratory is newly constructed, but needs minor repairs and no facility for testing specimens are created till date. There is need of creation of waste disposal facility.

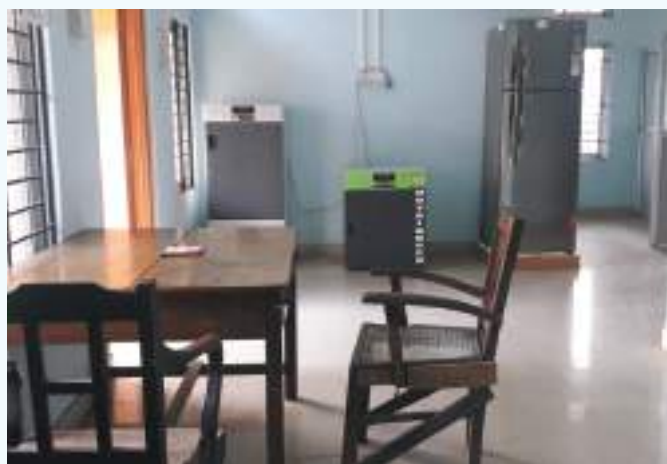
Manpower position:

There are no sanctioned posts to man the laboratory and therefore this laboratory could not function properly.

Requirement:

- | | |
|--|---------------|
| 1. Infrastructure development: | = Rs. 3.00 L |
| 2. Equipment and consumables: | = Rs. 35.92 L |
| 3. Engagement of three contractual persons @ Rs. 0.80 L/ month for 11 months | = Rs. 8.80 L |
| 4. Total requirement | = Rs. 47.72 L |

2. District Diagnostic Laboratory, Dibrugarh



The laboratory is in good condition and most of the routine works can be undertaken. However, the approach road needs to be renovated. There is need of creation of waste disposal facility.

Manpower position:

There are sanctioned posts of Assistant research Officer (1), Veterinary Officer (1), laboratory Technician (1) and Grade- IV (1).

Requirement:

- | | |
|--------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 2.00 L |
| 2. Equipment and consumables: | = Rs. 30.86 L |
| 3. Total requirement | = Rs. 32.86 L |

3. District Diagnostic Laboratory, Nagaon



The laboratory is an old one needing major renovation. The equipments need to be upgraded. Presently many of the routine works can be undertaken in the traditional way. There is need of creation of waste disposal facility.

Manpower position:

There are sanctioned posts of Assistant research Officer (1), Veterinary Officer (1), laboratory Technician (1) and Grade- IV (1).

Requirement:

- | | |
|--------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 15.00 L |
| 2. Equipment and consumables: | = Rs. 31.92 L |
| 3. Total requirement | = Rs. 46.92 L |

4. District Diagnostic Laboratory, Morigaon



The laboratory is newly constructed and yet to become functional.. There is need of creation of waste disposal facility.

Manpower position:

There are no sanctioned posts to man the laboratory and thus there is need to engage staff on contractual basis.

Requirement:

- | | |
|--------------------------------|---------------|
| 1. Infrastructure development: | = Rs. 2.50 L |
| 2. Equipment and consumables: | = Rs. 35.92 L |
| 3. Contractual manpower | = Rs. 8.80 |
| 4. Total requirement | = Rs. 47.22 L |

ACTIVITIES TO BE TAKEN UP IN THE FOURTH YEAR (2022-2023)

Three new laboratories will be constructed and commissioned in 3 districts in the fourth phase viz.

1. Majuli
2. Tinsukia
3. Dhemaji

The maintenance of laboratory equipments, buildings etc will be continued, procurement of consumables will continue and monitoring of laboratory activities will be made

Engagement of contractual Manpower will be continued along with skill upgradation program

ACTIVITIES TO BE TAKEN UP IN THE FIFTH YEAR (2023-2024)

Two new laboratories will be constructed and commissioned in 2 districts in the fifth phase viz.

1. Hojai
2. Biswanath

The maintenance of laboratory equipments, buildings etc will be continued, procurement of consumables will continue and monitoring of laboratory activities will be made

Engagement of contractual Manpower will be continued along with skill upgradation program

Possible outcomes: The project will contribute for sustainability of animal related productivity schemes by way of prompt disease detection and adoption of control measures. Will be able to prevent probable disease disasters by early detection of disease events in human-animal interface thereby will promote human and animal health, Production of quality animal vaccine, Quality testing of animal feeds for ensuring uniform standards, Protection of animal and poultry wealth with timely disease detection and control, Ensure food safety (of animal origin) and prevention of food borne diseases in man thereby helping trade of animal and animal products, and contribute to the aim of Act East Policy of the government Provide a database for animal diseases, Detect and act for control of diseases promptly and thereby acting as mitigating agency for probable disease disasters, provide scientific information, build capacity for routine and emergency response.

Socio Economic benefit

The vaccine production unit at **Institute of Veterinary Biologicals** can save a substantial amount of money for protection of its animals through immunization. The difference between production cost and market price of the vaccines indicates that there will be saving of more than **Rs. 1000.00 crores** per annum if the institute is able to produce and utilize vaccines at its optimal capacity.

The benefits of **Animal Health Centre** are similar to District disease Diagnostic laboratories.

The Regional Feed testing laboratory will be able to control the animal feed market by enforcing quality assurance, thereby preventing production loss of animals worth cores of rupees. Although it

was not documented properly, but in case of one complaint received through Deputy Commissioner of Dibrugarh district it was observed that there is a loss of production to the tune of 200 litres per day in one self help group engaged in dairying activities resulting in reduction of income by Rs. 9000.00 per day. This type of loss is preventable through RFTL.

District Animal Disease Diagnostic laboratories:

The socio-economic benefit of animal disease diagnosis are may fold. Some of them are as follows:

1. Will act as a sentinel agent for prevention of development of anti-microbial resistance thereby protecting human and animal health.
2. Will provide data for prevalence of animal diseases for developing targeted approach of animal disease control strategies by utilizing the limited resources
3. Will be able to control infectious/ contagious diseases before it gets chance of spread thereby protecting the farm households
4. Can prevent many types of food borne illness in human
5. Will be helpful for formulation of HACCP protocols for safe food production
6. Laboratories are essential part for animal trade and are more relevant for Assam as it is under the “Act East Policy” of Government of India.
7. Will restrict use of drugs in animals as only the targeted prophylactic/ curative drugs will be needed for treatment of animals thereby help in reduction of drug residues in animal tissues/ products
8. Can act as sentinel for ingress of any novel diseases and zoonosis thereby protecting public health in general.

Plan of execution:

1. All the civil works of the laboratories will be initiated simultaneously as per work plan and design and will be completed within 60 days after award of work order.
2. Procurement of instruments, equipment will be initiated and will be installed at the time of completion of civil works.
3. Procurement of chemicals, glass/ plastic works will also go side by side with equipment
4. Development of data management system and quality audit system will be made simultaneously
5. Training of staff manning the laboratories will be made simultaneously.

ANNEXURE-I

1. Infrastructure development

An initial assessment is made for inputs needed for infrastructure development in the meeting held on 8th August/18 and accordingly the following laboratories needs immediate intervention. Necessary plan and estimate for the same are being prepared under the Engineering cell of AHVD and will be incorporated with this report when they are made available. However, the works to be done and total budgetary requirement for each of the same is provided which are as follows:

Sl No	Name of the lab	Works to be undertaken	Amount reqd (L Rs)
1	Institute of Veterinary Biologicals	Repair and reconstruction of walk in chiller, electrical works of lab and campus and upgradation of vaccine production lab in consultation with CVSc (AAU)	20.00
2	Animal Health Centre	Earth work adjacent to GS road, development of connecting road from GS road to Autopsy room, Repair of WC of autopsy room, development of waste management in autopsy room	30.00
3	Regional Feed testing laboratory	Repairing& renovation, construction of RFTL building, with accommodation of Laboratory for RFTL and Physiological Chemist, installation of DTW with reservoir and distribution of pipe line, internal & external electrical work with A.C. provision, installation of Panel Board, Gen Set etc.with vertical extension	225.00
		Improvement of drain and apron around the building, Improvement of approach road and drain, Security barrack and gate, Landscaping and gardening for RFTL	64.50
4	DDL, Chenikuthi	Repair and renovation, electrical and water works, painting, Preparation of a waste disposal pit ,any other	2.50
5	DDL, Barpeta	Minor repair, Water and electrical works, painting, approach road, Preparation of a waste disposal pit	4.00
6	DDL, Tezpur	Repair and renovation, painting, waste disposal pit	4.00
7	DDL, Lakhimpur	Major Repair and renovation, paint, electrical and water issues, approach road from gate to lab, Preparation of a waste disposal pit	20.00
8	DDL, Silchar	Electrical fitting and fixing	1.00
9	DDL, Jorhat	Major Repair and renovation, paint, electrical and water issues, approach road from gate to lab, PM room, Preparation of a waste disposal pit	14.50
10	DDL, Mangaldoi	Painting and minor repairs, Preparation of a waste disposal pit	0.50
11	DDL, Gauripur	Approach road from gate to lab, main gate, Electrical issues, PM room, Painting, Repair and renovation, water supply, Preparation of a waste disposal pit	15.00
12	DDL, Goalpara	Minor repair, paining, water and electrical issues, slabs, Preparation of a waste disposal pit	3.00
13	DDL, Nalbari	Minor repair, paining repair of WC, waste disposal pit	3.00
14	DDL, Nagaon	Repair and renovation, paint Store room, officer room, water and electricity issues, PM room, Preparation of a waste disposal pit	15.00
15	DDL, Maorigaon	Painting and minor repairs, Preparation of a waste disposal pit	2.50

Sl No	Name of the lab	Works to be undertaken	Amount reqd (L Rs)
16	DDL, Dibrugarh	Approach road from main gate to lab, Preparation of a waste disposal pit	2.00
17	DDL, Sivasagar	Approach road, repair and renovation as per need	5.00
18	DDL, Golaghat	Store room, PM room, painting, Preparation of a waste disposal pit	4.00
19	DDL, Karimganj	Demolition and Reconstruction, boundary wall with gate, Preparation of a waste disposal pit	28.00
Total			463.50

Besides above plan and estimates will be prepared for construction of new laboratories which will be taken up in the fourth and fifth year of implementation in 5 districts where no laboratories are established so far. The districts to be taken up are Majuli, Tinsukia, Dhemaji, Biswanath and Hajai

ANNEXURE-II

PROCUREMENT OF EQUIPMENT

1. Details of Requirement for Regional Feed Testing Laboratory (RFTL) with Plant machinery Specifications

Sl N	Name of the equipment	Specifications	Unit reqd	Approx Unit price L Rs	Total Price in L Rs
1	Feed grinder for concentrate	Complete set, SS chamber, Size 100, 50 mm Motor 0.5 HP	1	1.54	1.54
2	Feed grinder for roughage	Complete set, SS chamber, Size 100, 50 mm Motor 0.5 HP	1	1.54	1.54
3	Hydro plus automatic double water distillation system	Fully automatic, value based version with reversed osmosis feeding unit with two stage stainless steel steam generators for pyrogen free lab grade water	1	2.20	2.2
4	Analytical Balance	Digital capacity 310-350 gm readability 0.001	2	1.20	2.4
5	Electronic precision balance	Digital capacity 310-350 gm readability 0.01	2	0.50	1
6	Hot air oven	Electrically Operated and Thermostatically Controlled, SS with glasswool insulation between the chambers. Temperature range: 50 to 250 degree C Inner Chamber (W x H x D): 600 x 900 x 600 mm	2	0.80	1.6
7	Muffle furnace	Digital control, chamber size 6X 6X12	1	0.95	0.95
8	Aluminum Box	60 mm	20	.002	0.04
9	Conventional Micro Kjeldahl system	one or two samples up to five grams. Designed for mounting on a base cabinet or table. Constructed of epoxy-coated steel. Two 600 watt heaters with two individual infinite-control knobs and distillation...	2	0.60	1.2

SI N	Name of the equipment	Specifications	Unit reqd	Approx Unit price L Rs	Total Price in L Rs
10	Semi Automatic KEL Plus	Four sample KEL plus digestion of plants, soils, water, food & feed, fertilizers & pesticides, cereals, pulses, heavy metals, general npk digestion, etc.) microprocessor based temperature controller (ambient to 450°C), digital display aluminium alloy heaters absolute fume trapping, pollution free analysis.	1	5.00	5
11	Block digestion system	Six place graphical verfision, automatic	2	1.05	2.1
12	Fibra Plus automatic PC compatible fibre estimation system	Six sample analysis with hot plate	1	3.50	3.5
13	Soxhlet apparatus	For 6 samples	1	0.60	0.6
14	Automatic solvent extraction system for fat extraction SOCS Plus	For solid and semi solid sample sizes of 1 to 100g Flexible	1	3.50	3.5
15	Bomb Calorimeter	Ballistic, Heat capacity jules/K, (10~35)°C, Pressure endurance of bomb, Dimension 600mm×480mm×460mm or equivalent	1	20.00	20
16	Fume hood	stainless steel, Size 1200/1500/1800mm*800*2350mm or customized.	1	2.00	2
17	Acid resistant storage cabinet	Apoxy coated SS 1000mm X 3000 mm	1	0.25	0.25
18	Refrigerator	400-450 lit	3	1.52	4.56
19	Suction pump	30 lit / m 0.25 hp	2	0.33	0.66
20	Magnetic stirrer with hot plate	2 lit ss top	2	0.17	0.34
21	Laboratory shakers	Table top With variable rpm	1	1.08	1.08
22	Lab freezer (500 lit)	500 lit	1	0.98	0.98
23	Water bath	400 x 300 x 100, 12 holes	2	0.31	0.62
24	Low cost chest freezer	600 lit	1	1.86	1.86
25	UV chromatogrhaply inspection chamber	Table top, Fitted with long wace UV lamp	1	0.29	0.29
26	Chromatography Unit (TLC kit)	Complete set with movable applicator, glass plate, drying plate, dessicator	1	0.71	0.71
27	TLC plate with UV chamber	Complete for aflatoxicosis analysis	2	0.27	0.54
28	Spectrophotometer	Digital, 340-960 nm	1	1.70	1.7
29	Variable size micropipette	100 u – 10000u	12	0.30	3.6
30	Micro tips	200 u – 10 ml	2000	0.001	2
31	Silica Basin	25-50ml	20	0.01	0.2
32	Goosh Crucible	50 ml	20	0.01	0.2

SI N	Name of the equipment	Specifications	Unit reqd	Approx Unit price L Rs	Total Price in L Rs
33	Funnel stand	For two standard funnels	6	0.007	0.042
34	Micro scoop	6 inch	10	0.001	0.01
35	Big spoon spatula	9 inch	10	0.001	0.01
36	Beaker tong	12 inch	6	0.007	0.042
37	Tong for crucible	8 inch	12	0.007	0.084
38	Funnel Buchner type	30x130x8 mm	30	0.009	0.27
39	Single burrete clamp	Standard	12	0.007	0.084
40	Metallic tong	For lab	5	0.01	0.05
41	Pipette stand	12 place	5	0.02	0.1
Total					64.00

ANNEXURE-III

DETAILS OF REQUIREMENT FOR DISTRICT DISEASE DIAGNOSTIC LABORATORIES WITH PLANT MACHINERY SPECIFICATIONS

SI No	Name of the equipment	Specifications	Unit reqd	Unit Price (Aprox)	Total Price
1	Analytical Balance	200-350 gm, precision = 0.01	16	0.3	4.8
2	Vertical Autoclave	Top loading 200 lit capacity with digital display	7	0.5	3.5
3	Bio Safety cabinet	Class II, A2	10	1.3	13
4	Block Heater	Digital controls and display of time and temperature • Powder-coated steel body construction • Range of configuration to hold 2 and 4 interchangeable modular blocks to accommodate a variety of vessels	16	0.2	3.2
5	BOD Incubator	Incubator Bacteriological, Chamber Size- 18"X18"X18", No of shelves-2, Capacity- 95 Lts, Aluminum make	8	0.6	4.8
6	MaC-intosh anaerobic jar	20"×12.5" is made up of metal	16	0.15	2.4
7	Inoculating loop with handle	A platinum coated loop with handle capable of repeated sterilization 150 mm	32	0.01	0.32
8	Colony counter	Digital, 100 mm count limit 0-9999 or equivalent	17	0.1	1.7
9	Centrifuge	Simple centrifuge , 6000 rpm with digital display	8	0.4	3.2

Sl No	Name of the equipment	Specifications	Unit reqd	Unit Price (Aprox)	Total Price
10	Hot air oven	Electrically Operated and Thermostatically Controlled, SS with glasswool insulation between the chambers. Temperature range: 50 to 250 degree Ceslius Inner Chamber (W x H x D): 350 x 350 x 350	8	0.4	3.2
11	pH Meter	Digital, suitable for routine laboratory operations, choice of pH, mV or °C readout, electrode stand	16	0.2	3.2
12	Refrigerator with 1.5KVA stabilizer,	350 lit	6	0.5	3
13	20°C deep freezer+ storage boxes+ volt stabilizer	Horizontal, 500 lit	18	0.7	12.6
14	Vortex Mixture	Bench top, digital, interchangeable attachments for tubes, flasks and microtitre plates	16	0.3	4.8
15	Micropipette set	Single channel, 200 u – 1000 u	12	0.5	6
16	Multi channel micropipette set	8 channel 200 u – 1000 u	12	0.5	6
17	Immuno electrophoresis apparatus	For gel electrophoresis size 11 X 17 X 3.5 cm or equivalent	16	0.5	8
18	UV-VIS Spectrophotometer	Low weight, Wavelength 190 nm - 1,100 nm, Cuvettes; Cuvette Changer; Barcode Reader; Fingerprint Reader, PC Software, touch sensitive screen Dimensions (DxHxW) 255 mm x 228 mm x 208 mm	16	2.4	38.4
19	Water Bath	Table top Double Walled SS Unit Thermostatically controlled Immersion Type Heater Shaking Tray for Of 25ml-500ml, digital display	12	0.3	3.6
20	Tissue Homogenizer	Stainless steel rod with pastle and replaceable grinding vessel. 1/20 HP motor with 4000 RPM with a speed regulator stirring rod 8 mm x 325 mm long fitted with drill chuck. Unit fitted on heavy cast-iron base with facility for raising or lowering of height.	16	0.6	9.6
21	Binocular Microscope	Microscope, binocular, 10x eyepiece, low voltage illumination 12 V/20 W built-in, 140 x 140 mm mechanical stage, 3 objectives 4x/0.1, 10x/0.25, 40x/0.65, triple nosepiece, lenses coated, separate coarse and fine focusing, built-in safety lock to protect slides.	16	0.3	4.8
22	Paraffin Bath	Floatation bath, 330x330x140 mm, 30-70° C	16	0.39	6.24
23	Tissue floatation Bath	6 liter water floatation bath	16	0.35	5.6
24	Microtome with accessories	Semi-automatic with disposable blades	16	0.6	9.6

Sl No	Name of the equipment	Specifications	Unit reqd	Unit Price (Aprox)	Total Price
25	Water Distillation apparatus	Single Stage, Complete with metal stand & electrical fittings, all glass Borosilicate. Minimum Output : 4 liters/hr, double / single distille, Power requirement max upto 3kW	16	0.4	6.4
26	Electric generator	Portable 2/3kva 5kw 5kva Electric Diesel operated Generator	16	0.4	6.4
27	ELISA Reader , printer and washer	Colorimetric ELISAs, kinetic assays and agglutination readings, Tunable wavelength option, data analysis software, 2-channel optics, auto switch-off function, Microplate shaking capability, compatible for 98/79/EC and 2011/65/EU RoHS regulations	16	5	80
28	Gas cylinder with bunsen burner	Domestic type, ISO certified accessories	16	0.04	0.64
29	UPS with extension board	Capacity : 600VA, Recharge Time : 6 hours, Input range 140-300VAC, Heavy Duty Battery, Auto Restart while AC Mains recovery, output time minimum of 15 minutes for atleast 3 devices, extension board equipped with 3 pin sockets (3 Nos), 5 mtr wire	16	0.05	0.8
30	Mc Master egg counting chamber	As per standard make with calibration	16	0.02	0.32
31	Mobile vet lab	A compact portable mobile laboratory box containing Accurate all/Kine Analyzer, Mini Centrifuge, Power Backup, Mini Incubator, Case/Mobile Carrying platform, Cuvettes with holder, Centrifuge Tubes, Micropipette with Microtips & tip Holder, database management Software, Reagents, Mini Laptop/ Data Recorder and solar panel	16	0.3	4.8
32	Fogger Machine	Easily operable, high performance, electrically driven for use in laboratories, ULV particles between 3 to 15 Microns. Capacity up to 10000 cubic feet, tank capacity is 5 liter	16	0.3	4.8

Sl No	Name of the equipment	Specifications	Unit reqd	Unit Price (Aprox)	Total Price
33	Loop sterilizer	Asbestos-free core element, heating element is safely enclosed in a perforated stainless steel guard chamber, infrared heating to produce high temperature (upto815°C), instant sterilization of platinum inoculating loops, needles, glass tube/pipette mouths and various metal & borosilicate glass instruments, Chamber diameter 14 mm or equivalent, chamber length 155 cm or equivalent, low weight, electrically operated.	16	0.1	1.6
34	Micro-wave oven	Output power-1000 microwave watts, Standard stainless steel Temperature probe,Outer Dimensions (inches) 20 (w) x (15) d x 12 (h) or equivalent, cavity Dimensions (inches) 13 x 13 x 8 or equivalent, chemical resistant flexible duct to connect to exhaust system, stainless steel clamps for ease of mounting, Infrared temperature sensor, Ashing package, equipped with electrical safety and operation standards.	16	0.15	2.4
35	Magnetic stirrer	Stainless Steel Top Plate, Optimum Heat Transfer,MS Powder Coated Housing, heating Temperature up to 200°C, Speed Range: 0 to 2200 rpm, Stirring Capacity up to 2 liters	16	0.25	4
36	Test tube and pipette stands	Plastic make for 12 pipettes (horizontal / vertical), stands for 2 micropipettes, round test tube stand cum rack	16	0.1	1.6
37	Lactometer	Glass Body (Lactometer & Cylinder), calibrated at average ambient temperature, scale graduation 0-40, divided into 1. 0 deg.	16	0.05	0.8
38	Lab animal cage	Polypropylene food grade make, CE certified, SS top grill ideal for housing (1) mouse and for(2) rabbits	32	0.05	1.6
39	PM table	Simple necropsy table, mobile with castors and breaks, drain hole , work area of the table is concave or convex, equipped with large drain sewer, residue basket, sturdy design and consequently, closure facility for drain holes, hook for bucket / waste container , stainless steel make, overall dimension 2600(L) x 900(W) x 850(H)mm, load capacity upto 500 kgs	16	0.4	6.4
40	PM set	Large animal post mortem set with a set of 22 instruments and box	12	0.06	0.72

Sl No	Name of the equipment	Specifications	Unit reqd	Unit Price (Aprox)	Total Price
41	Vaccine carrier	Storage capacity minimum of 2 Ltrs, Weight fully loaded max upto 6 kg., High Density polyethylene make, Internal dimensions (L x W x H): 10 x 10 x 18 cm or equivalent, removable or one side hinged lid, supplied with 4 Icepacks, Cold Life without opening 48 hours	32	0.02	0.64
42		Blood biochemical analyzer Automatic or semi-automatic, bench top veterinary biochemistry analyzer for at least 20 parameters	16	0.3	4.8
Total					290.25

1. An amount of Rs. 20.00 L per lab will be provided under APART for 7 laboratories (Tezpur, North Lakhimpur, Jorhat, Chenikuthi, Barpeta, Mangaldoi, Silchar)
2. Some of the equipments/ machineries are in operation in some of the laboratories and therefore laboratory wise requirement will differ.

ANNEXURE-IV

DETAILS OF CONSUMABLES (CHEMICALS, MEDIA, GLASS/PLASTIC WARES, DIAGNOSTICS, REAGENTS ETC.)

The list of consumables (chemicals, media, reagents glass/ plastic wares etc) that will be required to be procured will vary from time to time. Therefore the procurement will be done from time to time for different components and the list may vary and therefore adjustments will be made within the fund made available under this component. The general requirement which will have to be procured for RFTL and 17 laboratories in the initial phase is as follows:

ANNEXURE- IV (A) CONSUMABLES FOR RFTL

S. No.	Name of item	S. No.	Name of item
1	Hydrochloric acid conc	25	Sodium borate decahydrate
2	Conc. HNO ₃	26	Disodium hydrogen phosphate
3	Conc H ₂ SO ₄	27	2-ethoxy ethanol (ethylene glycol)
4	Sodium Hydroxide	28	Decahydronephthalene
5	Phenophthalene	29	Acetone
6	Acetic acid	30	Sodium sulphite
7	Petroleum ether (60-80 deg)	31	CTAB
8	Petroleum ether (40-60 deg)	32	n-hexane
9	Na ₂ SO ₄ anhydrous	33	Calcium chloride
10	CuSO ₄ crystal	34	Di glycol stearate

S. No.	Name of item	S. No.	Name of item
11	Selenium pulv	35	Di butylphtalate
12	Methyl red	36	Magnesium oxide
13	Methyl orange	37	Alkaline phosphotungstate
14	Boric acid	38	Diazolized P nitroaniline
15	Pot Sulph Anhydrous	39	Nitrous oxide
16	Absolute alcohol	40	Acid permanganate
17	Bromocresol blue	41	Oxalic acid
18	Ammonium oxalate	42	Sodium indigotin di sulfonate
19	Ammonium hydroxide	43	Anhydrous ether
20	KMnO ₄	44	Thymol blue
21	Ammonium Molybdate	45	Potassium dichromate
22	Pot nitrate	46	Silver nitrate
23	Sodium Lauryl sulphate	47	Sodium chloride
24	Di sodium EDTA dedhydrate crystal	48	Silica gel
49	Sodium carbonate		
50	Hand senitizer		
Diagnostics			
1	Aflatoxin standard		
Glass/ Plastic waresetc			
1	Asbestos sheet	14	Funnel (50 ml)
2	Extraction thimble	15	Kjeldahl round bottom flask (500ml)
3	Beakers (100, 250, 500, 1000 ml)	16	Glass rod
4	Beaker without spout (250, 1000 ml)	17	Pipette (1, 2, 5, 10, 25 ml)
5	Reagent bottle (1000, 250, 60 ml)	18	Disposable gloves
6	Amber colour bottle (1000 ml)	19	Disposable mask
7	Wash bottle 500 ml	20	Volumetric flask (100, 250, 1000 ml)
8	Graduated Burette (10, 100 ml)	21	Conical flask with screw cap (100, 250 ml)
9	Measuring cylinder (100, 250, 1000 ml)	22	Wash Bottle with interchangeable stopper (500, 1000 ml)
10	Dessicators (200 X 20 mm)	23	Watch glass (80 X 120 mm)
11	Petri dishes (50 ml)	24	Apron, cap etc.
12	Flat bottom flask (105 X 168 mm)	25	Cotton wool
13	Round bottom flask (105 X 168 mm)	26	Conical flask (125, 250 ml)
Estimated Total fund requirement= 10.50			

ANNEXURE- III (B)

CONSUMABLES FOR DISTRICT DISEASE DIAGNOSTIC LABORATORIES

S. No.	Description	S. No.	Description
1	2,6-dibromoquinone chloroimide solution	29	Cupric sulphate
2	Acetic acid	30	Dimethyl aminobenzaldehyde (dmab)
3	Alcoholic koh solutions	31	Diphenyl solution
4	Barium borate-hydroxide	32	Disodium phenyl-phosphate
5	Barium hydroxide	33	Enzyme (0.20%w/v-200 mg/100 ml)
6	Boric acid	34	Ethyl alcohol
7	Bromocresol green	35	Ethyl alcohol
8	Concentrated hydrochloric acid	36	Ferric chloride
9	Copper sulfate solution	37	Gerber tube
10	Glycerine	38	Resorcinol, ndri test kit
11	Glycerol	39	Rosaniline acetate
12	Iodine solution,	40	Rosolic acid
13	Ionic strength adjustor (isa)	41	Sample bottles 500 ml
14	Iso-amyl alcohol	42	Silver nitrate,
15	Lactic acid solution	43	Sodium chloride
16	Methyl red indicator solution	44	Sodium hydroxide
17	Methylene blue test	45	Sodium hydroxide solution
18	Nesler's reagent	46	Sodium metaborate
19	Nitrazine-Yellow	47	Sodium/potassium standards
20	Phenolphthalein indicator	48	Standard phenol solution
21	Phospho molybdic acid	49	Sulphuric acid
22	Potassium chromate,	50	Vanadium pentoxide
23	Potassium ferrocyanide	51	Zinc sulphate
24	Potassium iodide	52	Zinc-copper protein precipitant
25	Potassium sulphate	53	Hand senitizer
26	Staining reagents	54	Any other as per requirement
27	Biochemical reagents		
28	Antibiotic disc		
Media			
1	Nutrient Broth	5	Brilliant green agar
2	Nutrient Agar	6	Potato Dextrose agar
3	McConkeys Agar	7	Other media as per requirement
4	Selective media	8	Differential media
		9	Transport media
Diagnostics			
1	Tuberculin PPD	5	Bacteriological Identification kit
2	Brucella identification reagent kit	6	Anitibiotic sensitivity testing discs
3	ELISA kits for PPR, Swine fever etc.	7	Others as per requirement

S. No.	Description	S. No.	Description
4	Salmonella identification kit	8	Mastitis detection kits
		9	Haemoprotozoataining kit
Glass/ Plastic wares			
1	Flasks- 100 ml – 1000 ml	9	Test tube- 6 ml
2	Beaker- 50 ml – 1000 mL	10	Centrifuge tube 1.8 ml & 15 ml
3	Measuring cylinder 50 ml-500 ml	11	Gerber tube
4	Test tubes – 18x150 mm	12	Litmus paper.
5	Test tubes with lid 18x150 mm	13	Pipette: 1, 5 and 10 ml capacity.
6	Pasteur pipette	14	porcelain basins
7	Pastel mortar	15	Thermometer
8	Sample collection vials	16	Disposable gloves
17	Sample storage vials	34	Disposable mask
18	Swabs in transport broth	35	Disposable needle & syringe
19	Syringe with needle	36	Single channel automatic micro pipette
20	Pasteur pipette	37	Pipette rack
21	Rubber teat	38	Test tube stand
22	Cotton	39	Micro tip rack
23	Wrapping foil	40	wash bottle (200 & 500 ml)
24	Zip bag	41	Tuberculin syringe
25	Biohazard bags	42	Slide calipers
26	Blood collection set	43	Sugar tube
27	Burette- 50 ml	44	Post Mortem set (Large & Small animal)
28	Burette stands	45	PPE
29	Pipette tips- 200 ul, 1000 ul	46	Field sample collection bag
30	Petriplates	47	Burrete
31	Shallow flat bottomed dishes of aluminum alloy, nickel, ss steel, porcelain or silica, 7 to 8 cm diameter, about 1.5 cm in height+ easily removable but closely fitting lids	48	8 channel automatic micro pipette
32	Cool box, thermos flask, thermos-cool box	49	Tips for micro pipette (.2 to 200 micro lit)
33	Ice pack	50	Apron, cap etc.
		51	Marker, registrar, cello tape, pencil etc.
Estimated Fund required = RS. 94.60 L			

N.B.The consumables will be equally distributed to all the laboratories

ANNEXURE- V

FURNITURE AND FITTINGS

The outlook and functioning of the laboratories also depend upon the type of furniture and fittings. The following are proposed for the same

DETAILS OF FUND PROPOSAL

SI No	Name of item	Specifications	No Reqd	Approx Unit Rate	Total amount in L Rs
1	Half Secretariat table	Godrej or equivalent	40	0.13	5.2
2	Chair	-do-	80	0.055	4.4
3	Lab Stool	-do-	50	0.025	1.25
4	Almirah and Instrument cabinet	-do-	16 + 16	0.28	4.48
5	Computer table	-do-	19	0.1	1.9
6	Modular Laboratory lab table with granite top and wall mounted cabinet for RFTL	-Do-	1	30	30
7	Modular Laboratory Wall mounted cabinet and lab work table for DDLs	-do-	16	3.88	62.08
8	Firefighting equipment	CO2 Non foam base	18	2	36
9	Post Mortem/ examination table	Complete stainless steel make	16	0.6	9.6
Total required under state plan					154.92

ANNEXURE-VI

DEVELOPMENT FOR INTEGRATED DATA MANAGEMENT TOOL (IT PLATFORM)

The present structure of communication and reporting of events related to animal diseases, outbreak investigation and mitigation measures taken, prevalence of diseases etc are not up to the level. These reports are required in many times in real time basis for control and containment of diseases and preventing probable losses of the farming community and also for providing safe food for the consumers. Therefore, an integrated IT platform is planned for not only to capture the real time data, but also to disseminate them to the concerned stakeholders and for data interpretations for effecting monitoring and better implementation of the government programs. The IT module will have to encompass the entire network of laboratories as well as its feeding institutions. Thus considering the needs the data module is divided into four categories, each of which will have dedicated software. The categories are:

- i. Disease registration and tracking
- ii. Post Mortem management technology
- iii. Laboratory management technology
- iv. Quarantine station management technology
- v. Dispensary management technology

The software development for these tools and technologies will be made by technical experts working in the relevant field and the hardwares that will be required will be procured. The fund requirement for procurement of hard ware (computer, printer, UPS, accessories etc), software (operating software, cloud based software, GPS specific software etc) and logistics per (computer table/chair, etc. are as follows:

ANNEXURE-VII

SKILL DEVELOPMENT, TRAINING, HIRING OF CONTRACTUAL MANPOWER

The deployment of skilled manpower in the laboratories will be essential for effective service delivery. However, some district level laboratories do not have any manpower to run the institution. The skill upgradation of the existing manpower is also necessary to take up the tasks related to public service delivery in the laboratory setup. Therefore a comprehensive plan of work for skill up-gradation and hiring of skilled manpower and helping staff is necessary. The skill up-gradation training will be imparted at various places including College of Veterinary Science, Assam Agricultural University, Animal Health Centre (AHC), Khanapara, Core-Lab-I of ADMaC (AAU) with collaboration from ILRI. Hands on training will also be imparted in the laboratories by skilled persons.

a. Training for skill up-gradation:

Sl No	Training topic	Venue and duration	Type of participant	Cost	No of participants	Fund requirement in L Rs
1	Training on common laboratory practices (2 times at 6 month interval)	Guwahati 5 days	Veterinary Officer (laboratory)	Rs.2500 per person per day	17	4.25
2	Training on common laboratory practices(2 times at 6 month interval)	Guwahati 5 days	Laboratory Assistants	Rs. 2000 per person per day	17	3.40
3	Hands on training on laboratory practices	In field labs 5 days	VO and Lab Assistants	Rs. 0.75 Lakh per lab	All field labs (17)	12.75
4	Training of RFTL persons (2 times at 6 month interval)	Guwahati 10 days	VO and Lab assistants	Rs. 1000 per person per day	4 + 4 = 8	0.80
Total fund required						21.20

b. Contractual engagement of manpower in laboratories

Sl No	Name of post	Work place and duration of service	Duration of Contract (Extendable)	Minimum Qualification	No of recruits needed	Consolidated Emoluments per month	Total amount in Lakh Rs
1	Laboratory Officer	RFTL, Guwahati	11 Months	BVSc& AH	2	40,000	8.80
2	Laboratory Officer	DDLs of Goalpara, Nalbari, Barpeta, Mangaldoi, Morigaon, Golaghat, Sivasagar, Karimganj	11 Months	BVSc& AH	8	40,000	35.20
3	Laboratory Assistants	RFTL and DDLs of Goalpara, Nalbari, Barpeta, Mangaldoi, Morigaon, Golaghat, Sivasagar, Karimganj	11 months	BSc in Chemistry/ Biochemistry/ Biotech-nology	9	25,000	24.75
4	Laboratory attendant	All 16DDLs and RFTL	11 months	8 th standard	18	15,000	29.70
Total fund required under state plan							98.45

ANNEXURE-VIII

QUALITY AUDIT AND HIRING OF CONSULTANT FOR ISO CERTIFICATION AND THIRD PARTY MONITORING

The functioning of the laboratories should be assessed internally as well as externally. The internal assessment can be made by the state government using the IT interface as well as physical verification. The external evaluation is also necessary which involve ISO certification as an essential part for validation of the test results. The ISO certification agencies perform annual quality audit of the laboratories for quality assurance and therefore hiring of such specialized agencies is necessary.

The state laboratory (Animal Health Centre) and the Institute of Veterinary Biological also needs GLP and GMP quality assurance. This is mandatory for providing services in respect of animal products meant for national or international trade. Moreover it is a mandate for Institute of Veterinary Biological to become GMP compliant with ISO 17025 certification and thereby to obtain drug licence. For all the above hiring the services of specialized agencies are necessary.

ABSTRACT OF FUND PROPOSAL

SI No	Name of lab	Type of certification proposed	Additional Requirement	Amount in L Rs
1	Institute of Veterinary Biologicals	ISO- 17025:2005	Preparation of DPR for GMP compliance	25.00
2	Animal Health Centre	ISO- 17025:2005	GLP certification	21.00
3	Regional Feed Testing Laboratory	ISO-9001-2008	-	
4	District Disease diagnostic Labs	ISO-9001-2008	-	
5	Third party monitoring	Progress of activities, socio-economic implications etc	-	4.00
Total				50.00

POSSIBLE OUTCOMES OF THE PROJECT

1. Animal Husbandry and Veterinary Department is implementing various animal husbandry programs. The sustainability of animal related productivity schemes is dependent upon prompt disease detection and adoption of control measures. The role of veterinary laboratories in this regard is crucial.
2. Regular laboratory test based surveillance is critical for prevention of probable disease disasters by way of early detection of disease events in human- animal interface thereby will contribute to human and animal health issues.
3. Production of quality animal vaccine in the regional context is essential and the Institute of Veterinary Biologicals is catering this need by producing several vaccines that is used in the state. These vaccines include Hemorrhagicsepticemia, Black Quarter, Anthrax, Swine fever, Duck Plague and New castle disease. The production capacity of these vaccines will be augmented to meet the demand of the state.
4. Quality testing of animal feeds for ensuring uniform standards is a long standing need of the farmers. This need can be addressed by revival of the Regional Feed Testing laboratory.
5. Protection of animal and poultry wealth with timely disease detection and control can be addressed; thereby will contribute to economic upliftment of the farmers.
6. Food safety (of animal origin) and prevention of food borne diseases in man is the need of the hour. This problem can be addressed by restructuring the district disease diagnostic labs. This not only will help the consumers to obtain safe food but also will help national and international trade of animal and animal products.

7. Development of a database for animal diseases will be helpful for prompt detection and adoption of control measures with dissemination of disease data to stakeholders will be helpful for confidence building and trade related activities. This will also help the concerned authority to act as mitigating agency for probable disease disasters before it strikes. The data base will also act a source of scientific information for undertaking need based activities like capacity building, infrastructural improvement and will ensure reliability.



ANIMAL HUSBANDRY
& VETERINARY DEPARTMENT
Government of Assam

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