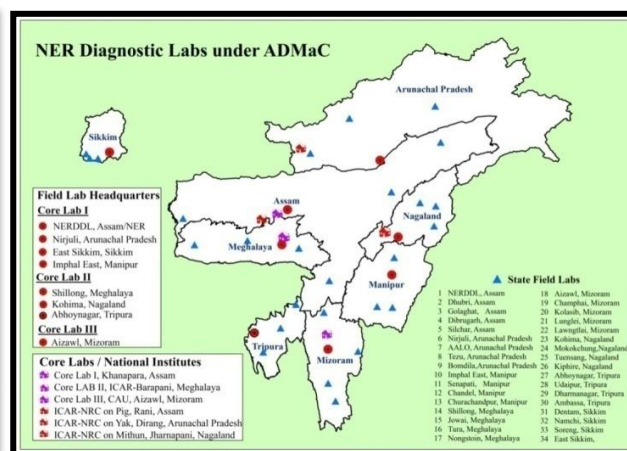


Consolidated achievements of Advanced Animal Disease Diagnosis and Management Consortium (DBT-ADMaC)

A. DBT-ADMaC Phase I

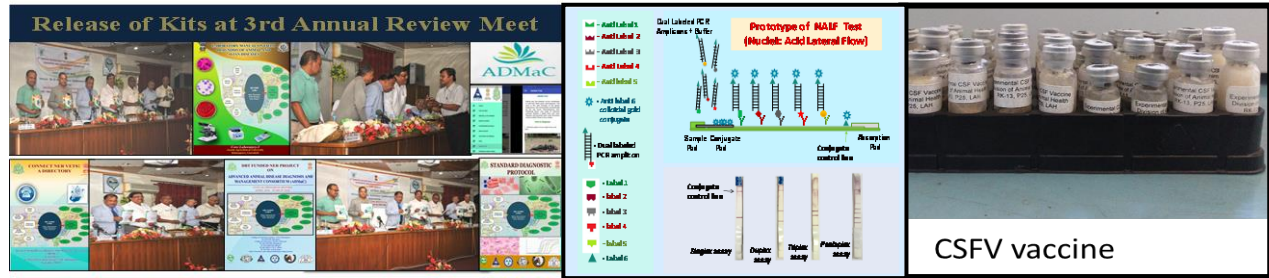
The North Eastern Region is the most vulnerable part of India for incursion of any pathogens due to sharing open international borders with five neighboring countries. However, there seems to be little preparedness to handle any imminent danger of any trans border or emerging diseases including diseases of zoonotic origin. Considering the above fact, the DBT, Govt of India came forward to handle any such extra ordinary situation by launching a project entitled “**Advanced Animal disease Diagnosis and Management consortium (ADMaC)**” in the year 2014 at an estimated outlay of **Rs 36.2562 crore**. The three local Institutes selected were Assam Agricultural University, Guwahati Campus, ICAR-NEH, Barapani in Meghalaya and Central Agricultural University, Mizoram. The state Animal Husbandry and Veterinary Department of all eight states of the North eastern regions were also incorporated as stake holders of the project. Four National Institutes like ICAR-NIVEDI, Bengaluru, ICAR-NIHSD, Bhopal, ICAR-NRC Equine /Type Collection Centre, Hissar and ICAR-NRC on pigs, Rani, Assam were incorporated as knowledge partner for developing modern diagnostic test and imparting training for developing skilled man power.



During its six years of its existence the project was able to reach the expected goal of establishing infrastructure, developing a team of skilled man power and batteries of diagnostic reagents, vaccines and disease information technologies. In order to strengthen the infrastructure facility, the DBT established a state of the art animal disease diagnostic centre at Guwahati at a cost of **Rs 5.00 crore**. Two existing laboratories, one at ICAR-Barapani and another at CAU-Aizwal were renovated. A BSL-3 laboratory at a cost of **Rs 5.00 crores** was established at Guwahati centre. All total 32 state disease diagnostic laboratories were renovated and furnished with minimum essential equipments.

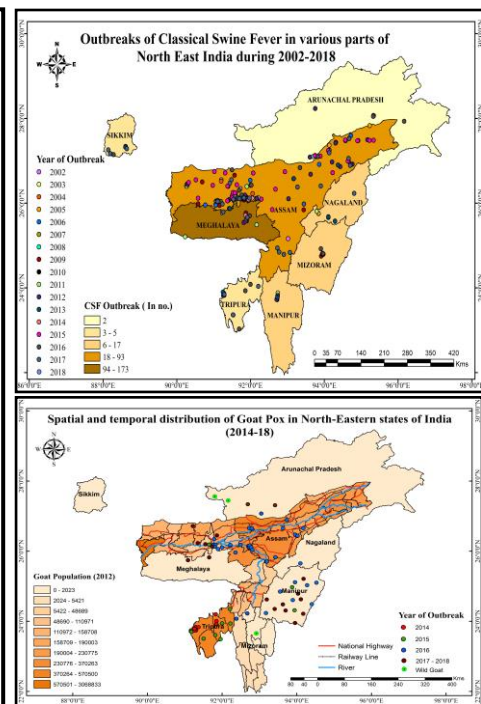
In order to improve the core competence of the manpower involved in animal disease diagnosis, a good number of young scientists, field veterinarians, para –vets, project assistant, technical assistant were trained either in National Institutes or in Assam Agricultural University. The DBT also supported to produce 13 Ph.D. and 37 M.V.Sc. graduates.

The collaborative research finally contributed a lot in the field of disease diagnosis and control. The biological resource generated includes a large number of important pathogens from various species of animal which are preserved safely in Veterinary Type culture centre, Hissar and at all three core Labs. Besides, serum



and tissue repository are also maintained. In the field of information technology, a web site (www.neradslab.res.in/www.cvsacadmac.org.in) was developed. Again, GPS based disease maps of important animal diseases were generated and disease data were authenticated with the help of meta-analysis. Worth mentioning scientific contribution includes development of two cell culture adopted vaccines against classical swine fever and duck plague, 7 ELISA based diagnostic kits, 9 PCR in house assays. Besides 38 existing diagnostic tests were optimized /improved. All the products /tests mentioned above were supplied to the field laboratories for field validation. In the field of knowledge sharing, the project was able to contribute one book, 5 laboratory manuals, and 83 research articles. In addition, 3 patents were applied for authentication. Another diagnostic kit is ready for release. A good number of scientific abstracts were also presented.

Sl. No	STUDY	Total no. of studies	Total No of samples	No of Positive samples	SI, No	Total no. of studies	Total No of samples	No of Positive samples
1	Foot and Mouth disease	41	41727	9601	0.22 (22.00)	98	0.4196	1.2-2.5
2	Bluetongue	12	3053	1119	0.31 (31.00)	96	0.6174	7.3-8.7
3	Brucellosis Bovine	16	54363	5409	0.11 (11.00)	99	2.712	3.7-6.5
4	Brucellosis Caprine	2	1164	28	0.02 (2.00)	0	0	7.2-92.8
5	Brucellosis Porcine	2	448	68	0.18 (18.00)	99	13.36	49.9-50.1
6	Rotaviral Diarrhoea incidence	19	3419	19	0.3 (30.00)	93	0.6659	4.7-5.8
7	Babesiosis	13	2015	498	0.09 (9.00)	97	2.6514	5.0-9.0
8	Theileriosis	9	2031	693	0.28 (28.00)	92	0.2414	1.4-13.8
9	PRRS	47	103827	12325	0.02 (2.00)	100	9.9951	1.9-2.3
10	Porcine Cysticercosis	14	4988	350	0.06 (6.00)	90	0.8405	5.9-8.2
11	PPR	25	5399	1279	0.17 (17.00)	94	1.7532	2.2-5.1
12	Porcine Circo Virus	38	2808	1345	0.43 (43.00)	94	4.253	1.9-2.9
13	Classical Swine Fever	10	1323	431	0.31 (31.00)	95	1.088	5.6-11.1



The project was also successful in creating a linkage with end users. For easy communication with the farmers a Mobile App named “ADMaC” was developed which was loaded with some necessary information/photograph for symptomatic diagnosis and appropriate action to be taken by farmers. The other

beneficiary of the project is various Govt Departments including Krishi Vigyan Kendras. Valuable wild animals at the State Zoo, Assam were saved due to timely detection of Canine Distemper and immediate adoption of preventive measures suggested by ADMaC centres.

India is now sitting on a time bomb of deadly pathogens of animal origin and is likely to burst at any moment in any place. The triggering point of the bomb is located in our neighboring countries. Recent example is Covid-19 outbreak in human and ASF outbreak in NER. The diffusing point for incursion of emerging diseases is located in North Eastern part of India because of open border. It is expected that ADMaC will be a step forward in fulfilling one health concept and to make NER well equipped to defend entry of any transboundary diseases future support in the form of Phase II is utmost necessary. The success story of the project is already appeared in the DBT-website.



B. DBT-ADMaC Phase II (2021-2024):

During its six years of its existence in phase I, the project was able to reach the expected goal of establishing infrastructure, developing a team of skilled man power and batteries of diagnostic reagents, vaccines and disease information technologies. All the three core laboratories and National laboratories developed various genomic and antibody based diagnostic facilities/diagnostics for diagnosis of existing diseases of livestock and poultry as well as wild animals. Tests were optimized and standardized as per OIE guidelines. To adapt real time disease diagnosis and prevention in NER states with an effective deployment of indigenous technology developed during phase-I need further validation as per OIE guidelines. Accordingly, DBT sanctioned following sub-projects in phase II to complete set mandates of the projects under broad title **"Validation and translation of the vaccines as well as diagnostic technologies developed in Phase I of ADMaC"**.

Sub Project	Title of the project	Sanction Number
Sub-1	Validation, Regulatory Compliance And Translation Of Vaccine And Molecular Diagnostic Duck Plague	99/DRV/309/ADMaC PH-II/S.P-01/2021-22
Sub-2	SWINOSTICS: A Platform For Development And Validation Of Diagnostics Of Important Pig Pathogens In Ne Region Of India For Commercial Exploration	99/DRV/306/ADMaC PH-II/S.P-02/2021-22
Sub-3	Validation And Field Testing Of Diva Tests Developed In ADMaC Phase-I Project For Surveillance Of Brucellosis In North Eastern Region Of India	99/DRV/310/ADMaC PH-II/S.P-03/2021-22
Sub-4	Upgradation and Implementation Of Knowledge Based System (KBS) In NER Of India (An Extended Activity Of Advanced Animal Disease Diagnosis And Management Consortium, ADMaC)	99/DRV/308/ADMaC PH-II/S.P-04/2021-22
Sub-5	Development , Evaluation and validation of peptide based Elisa for the Zoonotic diseases (I) Brucellosis and (II) Coxiellosis (Q fever)	99/DRV/ /ADMaC PH-II/S.P-05/2021-22



The creation of the state-of-the-art facilities (DBT-ADMaC) convinced funding agencies to sanction following 3 more DBT funded projects.

Sub Project	Title of the project	Sanction Number
Other ongoing projects		
Project-6	1. Porcine circovirus generation and evaluation of a live vectored vaccine against virus infection of swine	
Project-7	2. Modelling of indigenous diagnostics and immuno-potent vaccine candidates to combat African swine fever in India	
Project-8	3. Establishment of Consortium for One Health to address Zoonotic and Transboundary Diseases in India, including the Northeast Region	

Indigenously developed Technologies/Products in the form of a battery of diagnostic assays/kits, vaccines and their validation shall generate capacity in north eastern region and enable better research environment. A scientifically validated ‘**Complete Disease Database**’ on disease, pathogens, epidemiologically validated data on various diseases, nucleotide and protein sequence data on many pathogens will also be the important outcome of the funding – the new information added in the world literatures will enhance the prestige of the scientific community in particular and the country in general. Development of animal health management package in the NER through reliable diagnostic assistance for effective control of diseases and enable to transfer scientific disease management tips at farmer’s door step.

C. Advanced Animal Disease Diagnosis and Vaccine Research (ADVARC) :

Scientifically sound and uniform testing is of fundamental importance for appropriate disease diagnosis and for the application of the necessary control and eradication measures. There could be a large number of endemic and emerging diseases in the North East region and for want of diagnosis, these diseases may be overlooked and ignored. There should be available diagnostic tools to confirm those outbreaks/cases. Various laboratories are developed in the state under DBT-ADMaC projects as well as under various projects. However, diagnostic reagents should be available to confirm those undiagnosed cause.

Therefore, an efficient vaccine up scaling technology should be in operation using available potent vaccine candidates to meet up requirements of the livestock farming community in NER. Along with that various diagnostic tools should be available at regional level as well as district level. Besides, a robust infrastructure, competent manpower and for self-sufficiency revenue generating mechanisms should be arranged in existing set up with following objectives-

1. Development of cost effective vaccines to cater the needs of livestock and poultry farming community and evaluation of immunogenic potential in large scale field application.
2. Channelization of viable mechanism from vaccine production centre to end user level.
3. Development and validation of field level diagnostic kits for rapid identification of causative agent.
4. Providing livestock and poultry disease diagnosis service, surveillance and health consultancy service.
5. Education and training of field veterinarians, KVK personnel, and unemployed youth for entrepreneurship in the field of diagnosis and control of livestock and poultry diseases.

Salient achievements during the year 2021-22:

- ❖ A total of **904** numbers of sample tested (Canine/Feline: 693, Bovine: 29, caprine: 8, Tiger: 3, Elephant: 160, Human: 2, Equine: 1, Avian: 4 and Water sample: 4) during the period of 2021-22.
- ❖ Total 29,780 doses of vaccines were sold, out of which 28,850 were Duck Plague and 930 were Classical Swine Fever.
- ❖ Revenue earned during the period 2021-22 : **Rs. 7,75,650.00** (Diagnostics: Rs. 621750.00; Vaccine: Rs. 153900.00)
- ❖ Revenue earned from 2019 to 2022 is **Rs 11, 92,250.00 [Rs 4,16,600.00+ Rs 7,75,650.00]**