# Unique Animal Identification (UAID)





## पशु आधार

# Importance of Animal Identification

1. Professional and Efficient delivery of services to farmer/ animal..

2. Scientific and systematic implementation of genetic improvement and other technical programs.

3. Animal health surveillance by identifying and tracking individual animal.

4. Implementation of different social welfare schemes by Government and other institutions, viz Livestock insurance, loans , grant, etc.

5. Traceability of imported germplasm. Trading Of livestock.

6. Policy makers and planners .

7. Mandatory requirement for use of INAPH system.

# Involved Institutions/Agencies

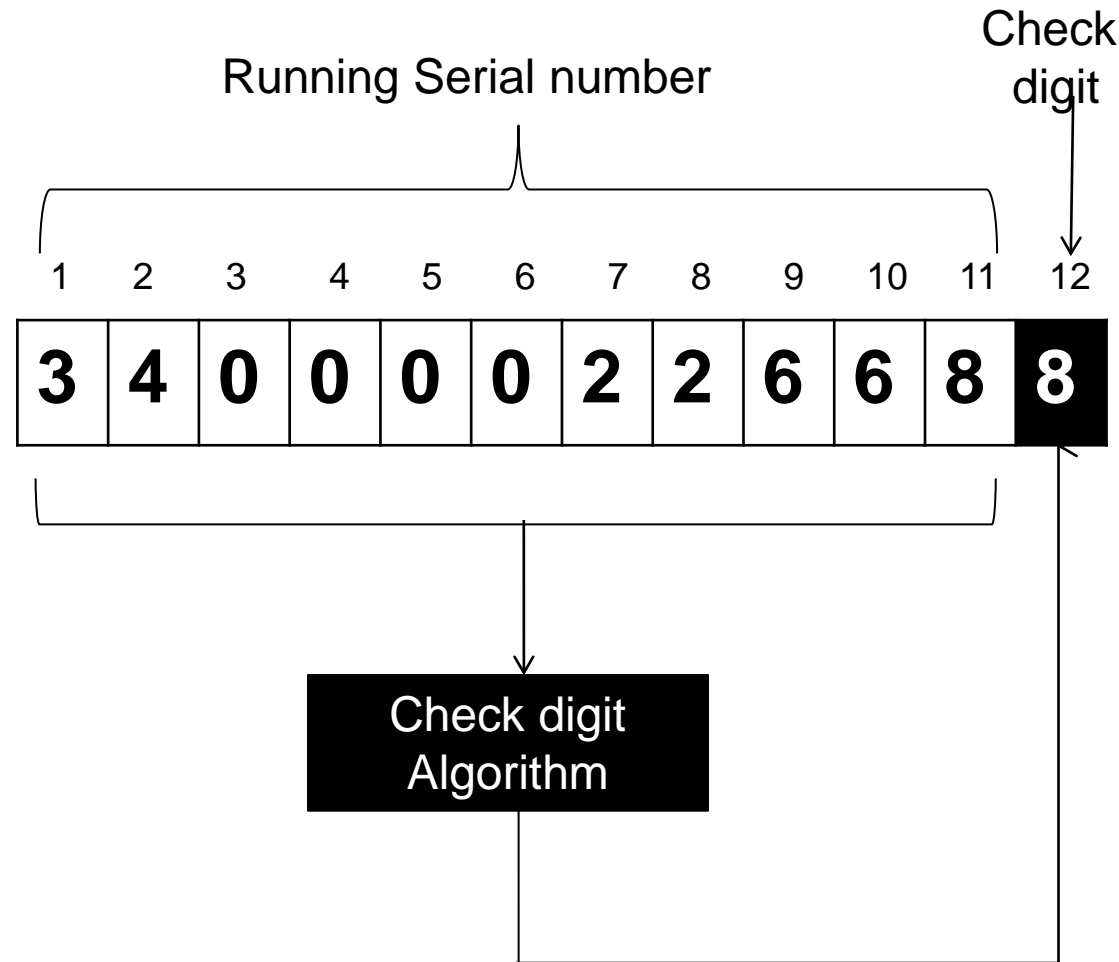| | |
|---|---|
| 1. State AH Department. | 11. Insurance Companies |
| 2. State Livestock Development Board | 12. Banks/Financial Institutions |
| 3. CHRS, GOI. | 13. Organised Dairy Farms/BMF |
| 4. CCBF, GOI. | 14. Semen Stations |
| 5. Cooperative Union | 15. Producer Companies |
| 6. State Federations | 16. Universities, Research stitutions. |
| 7. NGOs | 17. Private companies |
| 8. Trusts | 18. Slaughter houses |
| 9. Municipal Corporation | 19. Wild Life institutions |
| 10. Animal welfare societies. | 20. Others |

# Animal Identification System

1. Designed following ICAR (International Committee for Animal Recording) guidelines.

2. Containing 12 numeric digits. First 11 digits are running serial numbers and 12th digit as check digit.

3. Capacity of 100 billion animals. Sufficient for more than 500 years.

4. Can be used for any tagging system viz, Plastic, Barcodded, RFID etc.

Running Serial number

Check digit

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 3 | 4 | 0 | 0 | 0 | 0 | 2 | 2 | 6 | 6  | 8  | 8  |

Check digit Algorithm

# Animal Identification System : Key Advantages

1. State/District/Specie/Sex/Breed etc…wise eartag inventory/stocks, not required.

2. Any tag can be used in any part of the country, by any service provider, for any program implementation.

3. Eartags purchased for a scheme/project can be used for any other scheme, if required.

4. Eartags purchased by any Agency can be transferred/sold to any other agency, if required.

5. Surplus, wastage will be minimised.

6. Optimal Capacity utilisation of number system.

# Animal Identification System Delivery Mechanism

1.DADF, GOI issued an advisory to Secretary, AH Department of all states, regarding use of unique identification numbers for each animal in the state under various schemes

2. As desired by GOI, NDDB is centrally managing the uniqueness and delivery of eartag numbers to all concerned.

3. On request, NDDB provides unique eartag numbers to all institutions in the country, including eartag manufacturers.

4. Around 1 crore eartag nubers are being generated every year.

5. Recommended  standard specifications for Bar-coded Plastic eartags.

# EARTAG SPECIFICATIONS

1. **Description** : The ear tag composed of two parts (Male + Female). The male part is a button with a diameter of 27 mm (± 2mm). The male part should have a metal point. The size of the female piece should be comprised between 55 x 65 mm and 58 x 69 mm with a closed head.

2. **Raw Material** : The tag should be made from Thermoplastic Polyurethane Elastomer (Ether Grade) material that should be resistant to ultraviolet light, high and low temperature, impossible to reopen by wrench and should be tamperproof.

   The manufacturer should provide documentation from independent and recognized sources to demonstrate the non resolvability of its tags.

3. **Weight** : The weight of the ear tag (male+Female) should be 8 grams (±10%).

4. **Printing (Laser)** :
   1ˢᵗ Line    : A row of 6 digits, 9 mm high (± 1mm).
   2ⁿᵈ Line   : One dimensional Barcode with encoding 128, 9 mm high (± 1mm).
   3ʳᵈ Line   : A row of 6 digits, 17 mm high(± 1mm).

   

   Numbers and bar code should be printed on female tag and leaving minimum 2 mm margin on all sides.

   The printing must be as dark as possible to ensure the readability of the bar code over the years. The manufacturer should provide documentation to demonstrate the readability of its tags over the years.

   Animal Breeding (AB) Group, NDDB will send the list of twelve-digit numbers to be laser printed on ear tags.

5. **Colour** : The colour of the tag should be lemon yellow.

5. **Packing** : In order to manage the tag inventory the eartag should be packed in batches of 100 pieces in a good quality polyethylene bags indicating beginning and ending numbers and further packed in a **corrugated box containing 500 pieces of ear tags i.e. 5 polyethylene bags each containing 100 pieces of ear tags**
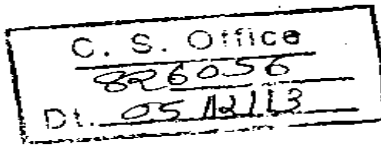
**Anup Kumar Thakur**

सचिव
भारत सरकार
**Secretary**
:rnment of India

भारत सरकार
कृषि मंत्रालय
पशुपालन, डेयरी व मत्स्य पालन विभाग
कृषि भवन, नई दिल्ली - 110001
**Government of India**
**Ministry of Agriculture**
**Department of Animal Husbandry, Dairying & Fisheries**
**Krishi Bhawan, New Delhi - 110001**

D.O.No.26-02/2012-DP
Dated the 21st November, 2013

Dear S. Sinha,

As you are aware, National Dairy Plan (NDP) was launched in April, 2012 with the prime objective of enhancing productivity of milch animals through scientifically planned programmes. NDDB is the nodal agency for implementation of NDP.

An Information Network has been developed by NDDB for collection of data which would be used by all NDP implementing agencies to ensure effective monitoring of the projects. The IT infrastructure for this has been designed by NDDB considering the country's requirement and is available across the country to all the implementing agencies of Animal Husbandry and Dairy Development Programmes, including non-NDP implementing agencies also. The key requirement of this information system is unique identification of each animal. All the projects under NDP are using specially designed laser printed plastic ear tags having 12 digit unique identification number and a bar code. NDDB has been generating these unique animal identification numbers for the manufacturer of plastic ear tags for some years now and maintaining the information database. Further, these unique numbers can also be used for RFID based animal identification.

Animal identification with unique numbers is useful for various purposes such as tracing the source of infection as well as spread of disease in case of an outbreak, recording AI and other breeding data, performance recording, vaccination details, traceability for food safety and so on. This can also be used for other purposes like identification of animals, insurance, bank loans, theft of animal, post-mortem etc.

It is important that we avoid a multiplicity of ear tags and introduce uniformity in animal identification across the country. It would therefore be advantageous if all users of ear tags such as insurance companies, banks apart from the implementing agencies of NDP use only plastic ear tags and obtain the unique identification numbers from NDDB.

I would therefore request that necessary instructions for the use of plastic tags with unique identification numbers from NDDB for each animal in the state under various schemes may be considered. NDDB would also be taking up this matter with your concerned officers.

With regards

Yours sincerely,

( Anup Kumar Thakur )

**Shri Varesh Sinha,**
Chief Secretary

# Information Network for Animal Productivity and Health

## INAPH

National Dairy Development Board, Anand.

# Key Objectives

**1. Establish an IT infrastructure for Service Providers involved in Productivity Enhancement & Health services.**

**2. Develop a Field Force Automation system for implementation of field based programs.**

**3. Provide a tool for field force to monitor & control day to day activities efficiently in the field.**

**4. Enable a System for managers to analyse past and plan for future.**

**5. Enforce Standard operating procedures (SOPs) of the domain.**

**6. Build a rich database for policy makers, scientists and analysts.**

# Key Attributes

An Integrated Application for Animal Breeding, Health and Nutrition services.

Designed incorporating all processes based on existing scientific domain knowledge with minute details.

A system containing single application for all service providers. Uniform, standard logic used to generate vital parameters.

Ensures uniqueness of Animal, Bull, Semen, Owner across country enabling tracking of Animals.

Each & every activity is recorded individual animal-wise. Rigorous, transaction validation mechanism, in-built in the system.

Capable of handling complex scenarios where multiple agencies working in the same geography providing different services on the same animal.

# INAPH Modules & Activities.



| Registration & Identification | AI Delivery | Progeny Testing | Health & Disease Reporting | Nutrition & Ration Balancing | Lab Analysis & Examination | Stock Management | SMS Delivery |

# INAPH Logical View

## Identification & Registration

- Registration
- Movement (Sale, Cull, Death)
- Re-Registration
- Eartag Change

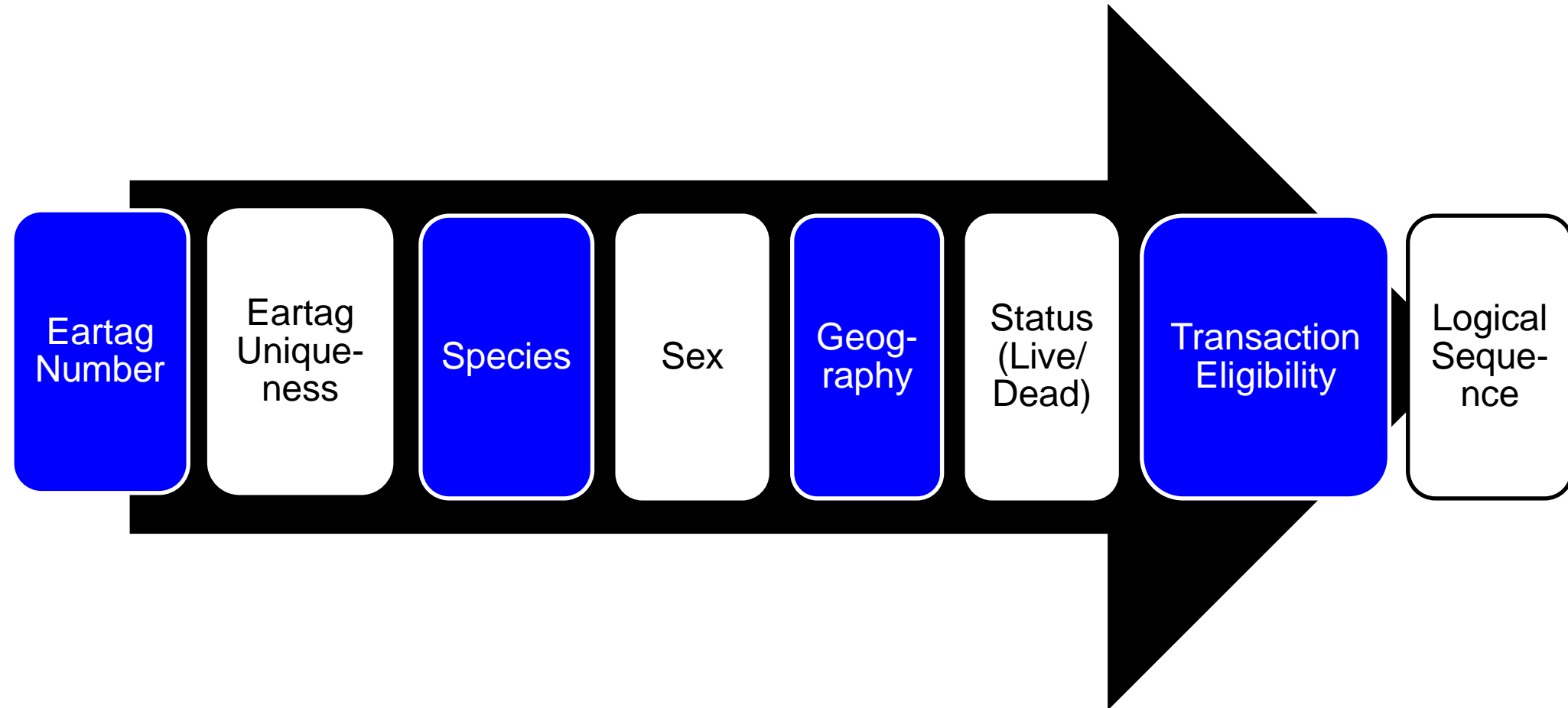| AI Delivery | Progeny Testing | Nutrition | Health | Lab Analysis & Examination | Stock Management | SMS Service |
|---|---|---|---|---|---|---|
| •Artificial Insemination<br>•Pregnancy Diagnosis<br>•Calving | •Milk Recording<br>•Typing<br>•Growth Moniting<br>•Milk Component Analysis<br>•Elite Animal Decl<br>•Parentage Confirmation.<br>•Breeding Value Estimation | •Ration Balancing (LP Model)<br>•Herd Ration Balancing (LP Model)<br>•Feed & Fodder Sample Analysis<br>•Pashu Poshan | •Vaccination<br>•De-worming<br>•Treatment<br>•Disease Testing<br>•Outbreak<br>•First Aid | •Milk Component Analysis.<br>•Pathology sample Analysis.<br>•Feed & Fodder sample Analysis. | •Item Allocation<br>•Item Sale | • **Push**<br>•Animal/ Owner<br>•Field Force<br>•General<br><br>• **Pull**<br>•Animal/ Owner |

## Framework Components

| Synchronisation Middleware | SMS Engine | Date Access Components |
|---|---|---|

# Activity Recording & Validation Process

Eartag Number → Eartag Unique-ness → Species → Sex → Geog-raphy → Status (Live/Dead) → Transaction Eligibility → Logical Seque-nce

# Location/Geography Hierarchy



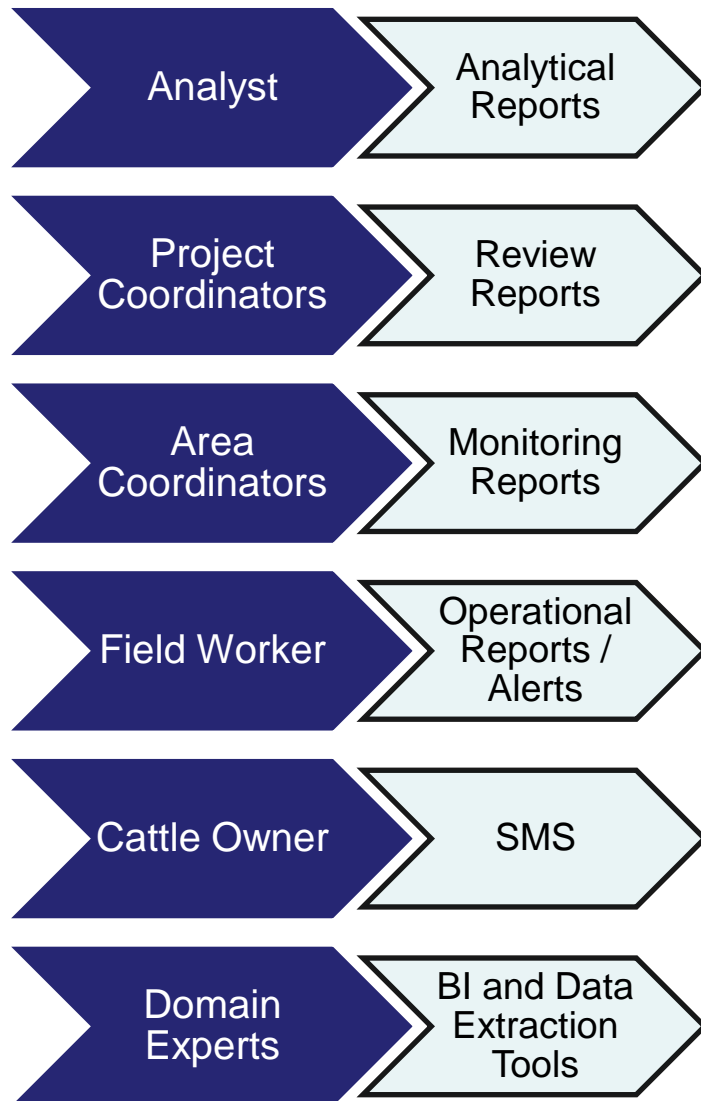| As per GOI, 2011 census. | |
| --- | --- |
| State | 35 |
| District | 648 |
| Taluka | 6,072 |
| Rev Village | **6,12,426** |
| Hamlet | 1,693,646 |
| | |

# Organization Hierarchy, Roles, Reporting and Area of operation
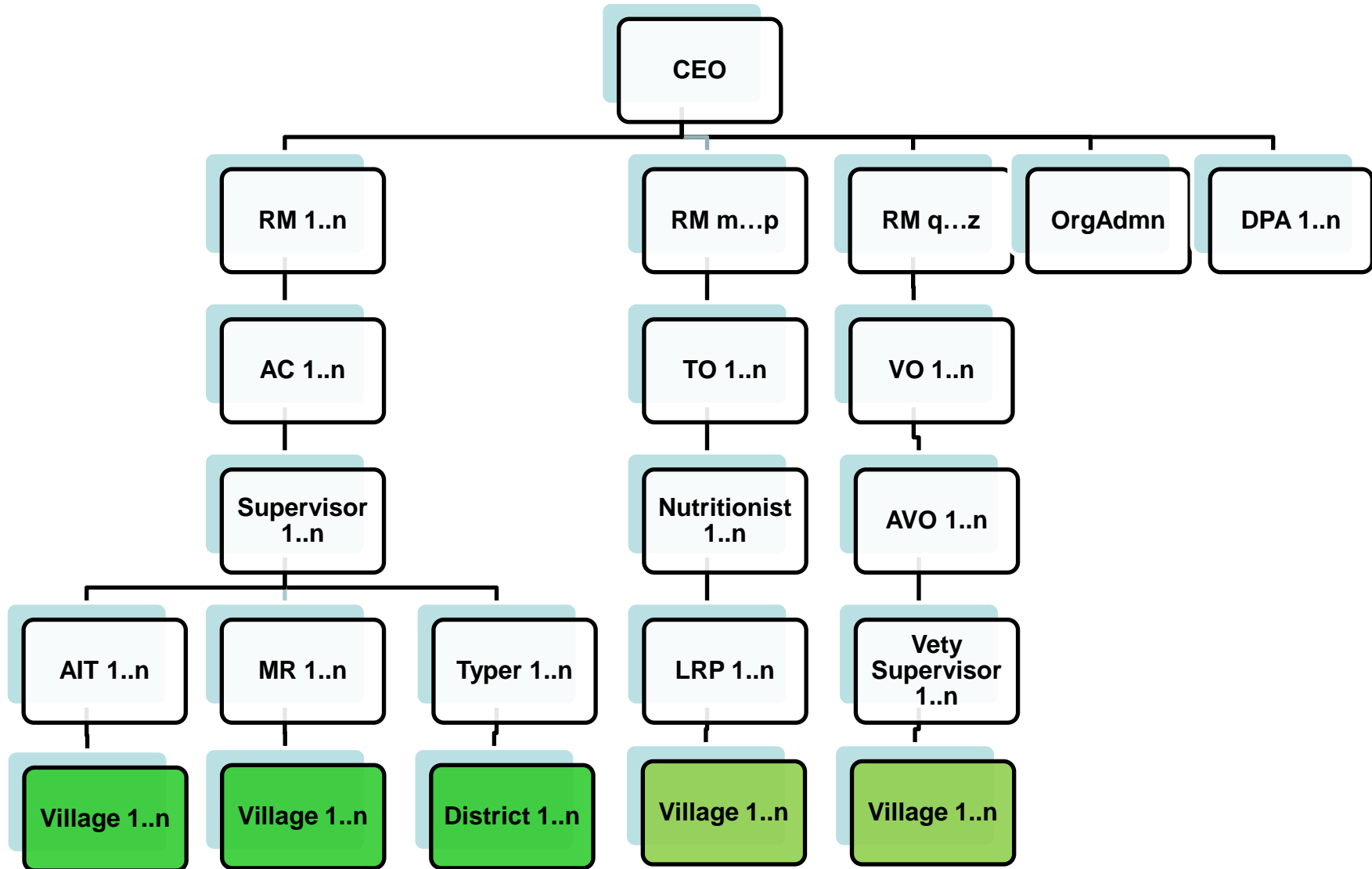
Proposed Field Force Hierarchy

# Reporting

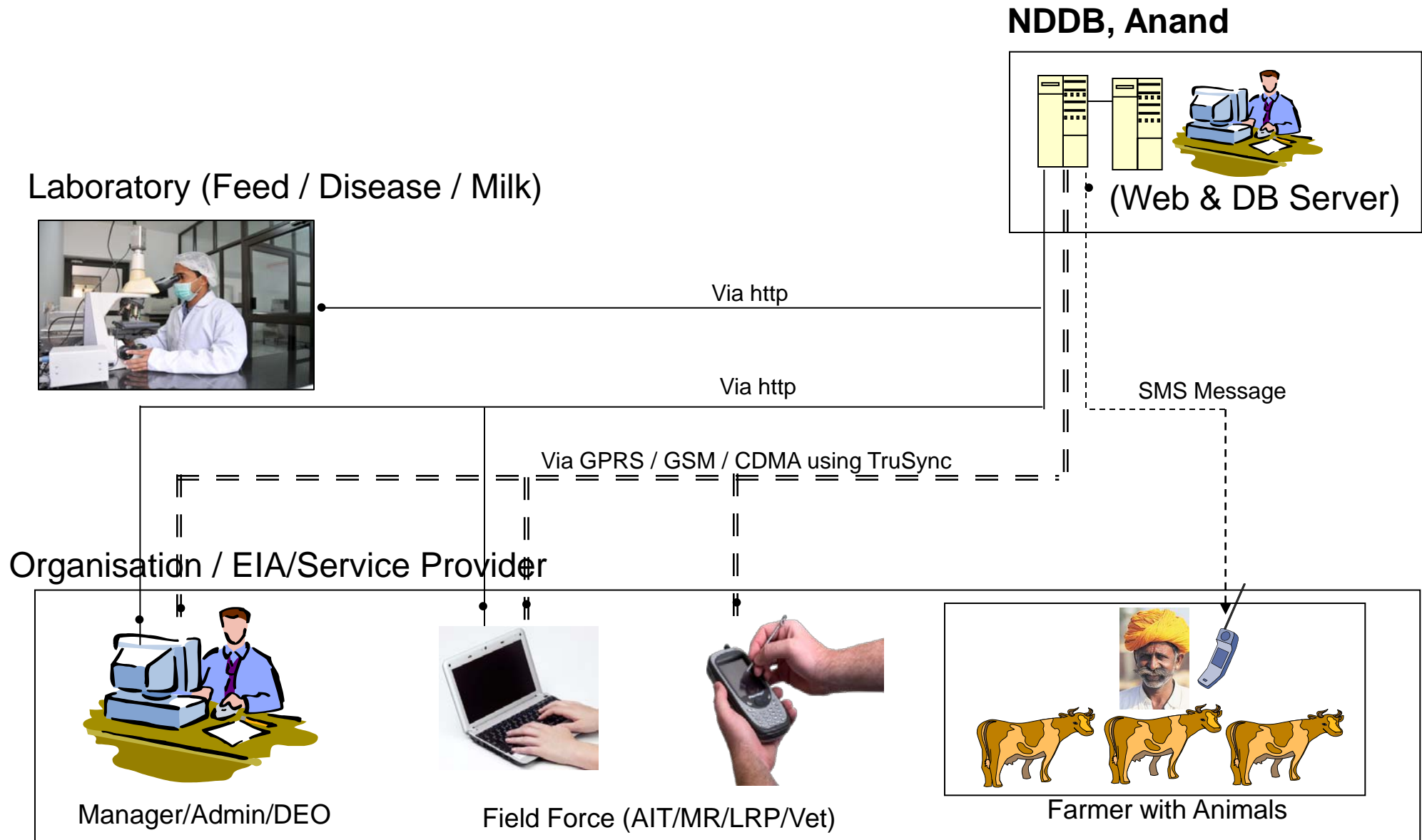| Role | Report Type |
|------|-------------|
| Analyst | Analytical Reports |
| Project Coordinators | Review Reports |
| Area Coordinators | Monitoring Reports |
| Field Worker | Operational Reports / Alerts |
| Cattle Owner | SMS |
| Domain Experts | BI and Data Extraction Tools |
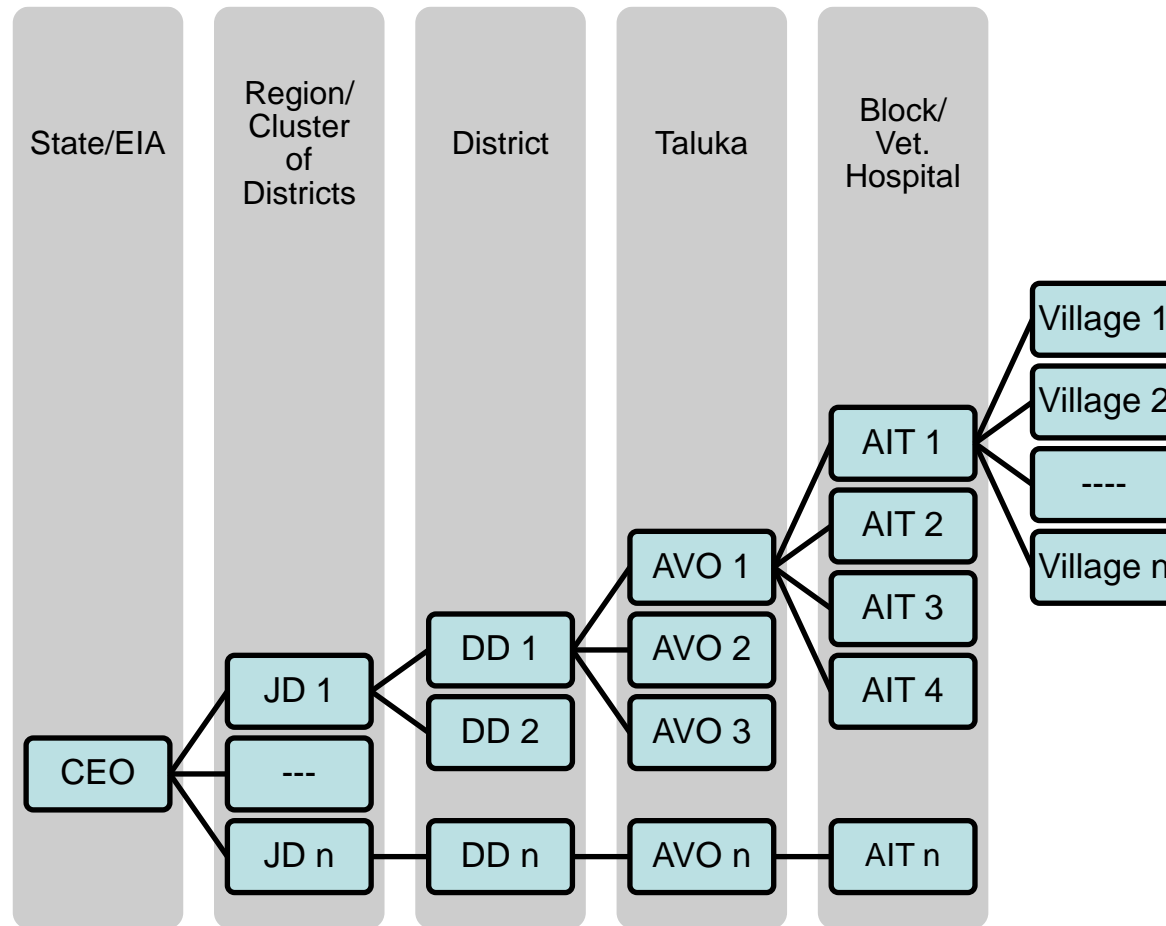
- Role and Hierarchy based Reporting covering one or more Functional Area.
- Provides Decision Supports as well as Operational Support based on the requirements .
- Provide Alerts to take action in Real Time.
- Web based Reporting on Common INAPH Portal at http://inaph.nddb.coop
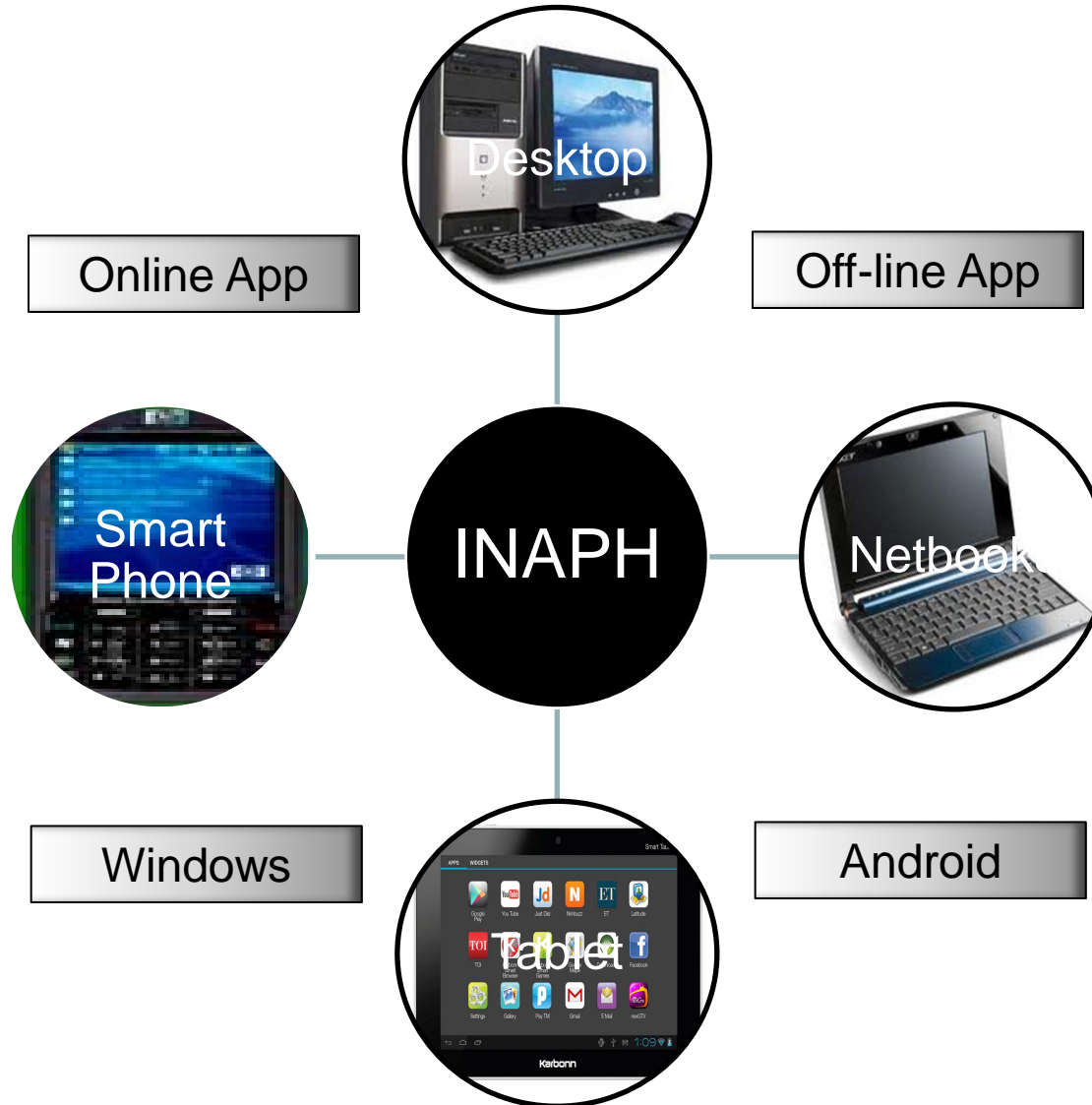
# Pull SMS Service

## A **Service** to avail information by sending SMS to **9601336677**

| Purpose | SMS | Response |
|---|---|---|
| Get Owner Information | **NDDB OWN** < Animal Tag ID ><br>e.g.<br>NDDB OWN 340012773718 | Return Owner Details of an animal like Owner Name, Village, Tehsil, District, State and Cell No. |
| Get Animal details | **NDDB AR** < Animal Tag ID ><br>e.g.<br>NDDB AR 340012773718 | Return Animal Tag ID, Registration Date, Registration User Id, Breed, Species, Milking Status, Pregnancy Status and Age. |
| Check Inbreeding for given animal | **NDDB INBR** < Animal Tag ID ><br>e.g.<br>NDDB INBR 340012773718 | Return Animal Tag ID, Sire ID, Full Sibling, Sire's Sire ID and Dam's Sire ID |
| Get Artificial Insemination details | **NDDB AI** < Animal Tag ID ><br>e.g.<br>NDDB AI 340012773718 | Return Animal Tag ID, Artificial Insemination details like Bull ID, Last AI Date, AI Dose Type and number of AI dose, Pregnancy Diagnosis details like Last PD Date and Pregnancy Status. |
| Get Calving details | **NDDB Calv** < Animal Tag ID ><br>e.g.<br>NDDB Calv 340012773718 | Return Animal Tag ID, Last Calving Date, Calving Type, Calf Tag Id and details of an AI along with lactation number. |
| Get Milk Recording details | **NDDB MR** < Animal Tag ID ><br>e.g.<br>NDDB MR 340012773718 | Return Animal Tag ID, Milk Recording Number, Last Milk Recording Date, Milk Yield and Lactation number. |
| Get RBP details | **NDDB RBP** < Animal Tag ID ><br>e.g.<br>NDDB RBP 340012773718 | Return Animal Tag Id, Last Ration Balancing Date and balanced Feed Details. |

# Deployment View

**NDDB, Anand**



(Web & DB Server)

Laboratory (Feed / Disease / Milk)



Via http

Via http

SMS Message

Via GPRS / GSM / CDMA using TruSync

Organisation / EIA/Service Provider

Manager/Admin/DEO

Field Force (AIT/MR/LRP/Vet)

Farmer with Animals

# INAPH Application Platforms & Versions

**Program Activities**

- Animal Registration /Ear tagging
- Artificial Insemination
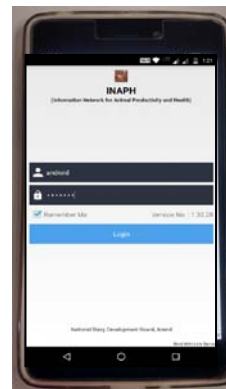- Calving and Male/ Female calf Registration
- Milk Recording
- Ration Balancing
- Animal Treatment, Vacc, De-worming, Disease Testing.
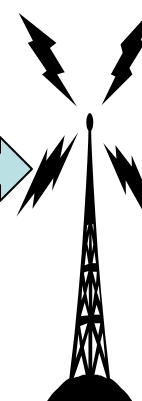- Lab. Analysis ( Milk Component, Disease Diagnosis, Feed & Fodder)

Android Phone, Tablet

iNotify Sync Middleware

Sync Session

INAPH central Database

Local phone database

Village 5

Administrator
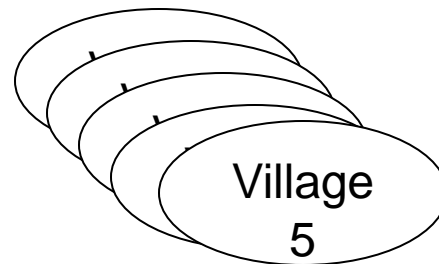
**Android based Smart phone/Tablet INAPH App.**

# Tools & Technologies

| | |
|---|---|
| **Architecture** | • Client - Server |
| **Server** | • MS SQL Server 2012 (Enterprise Edition) |
| **Desktop/ Netbook Clients** | • Windows based application developed using .NET framework.<br>• SQL CE local database on device |
| **Tablet Clients** | • .Android (4.1 Jelly beans) application and related database, available with android mobile devices. |
| **Handheld (Android Smart Phones) Clients** | • Android (4.1 Jelly beans) application and related database, available with android mobile devices. |
| **Synchronization Solution.** | • iNotify mobile Sync middleware. |
| **Web-based thin client** | • Browser (Internet Explorer) based application. |

# INAPH Database Security



Authorised Users

Authorised Role

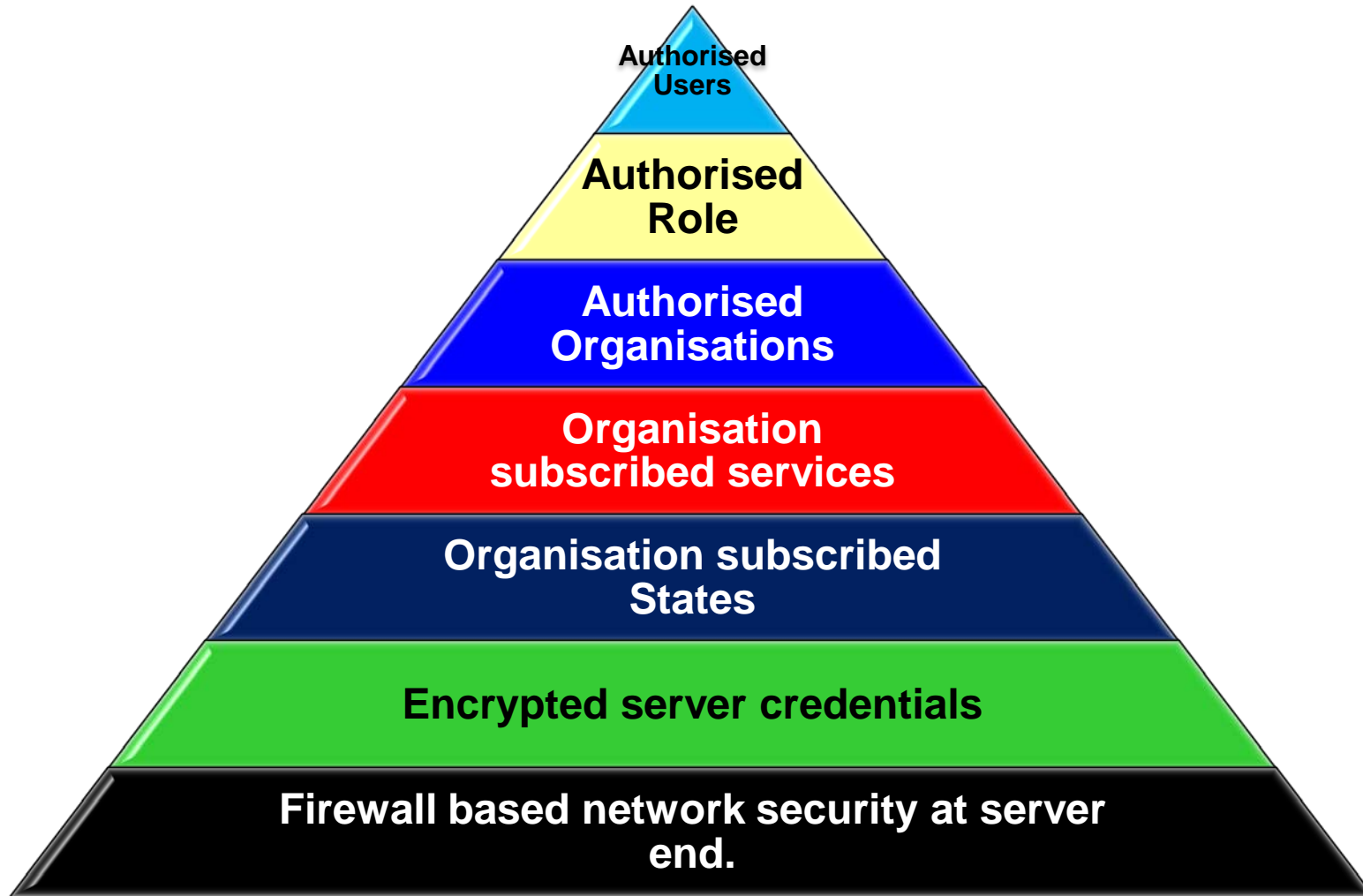Authorised Organisations

Organisation subscribed services

Organisation subscribed States

Encrypted server credentials

Firewall based network security at server end.

# INAPH Adoption progress so far
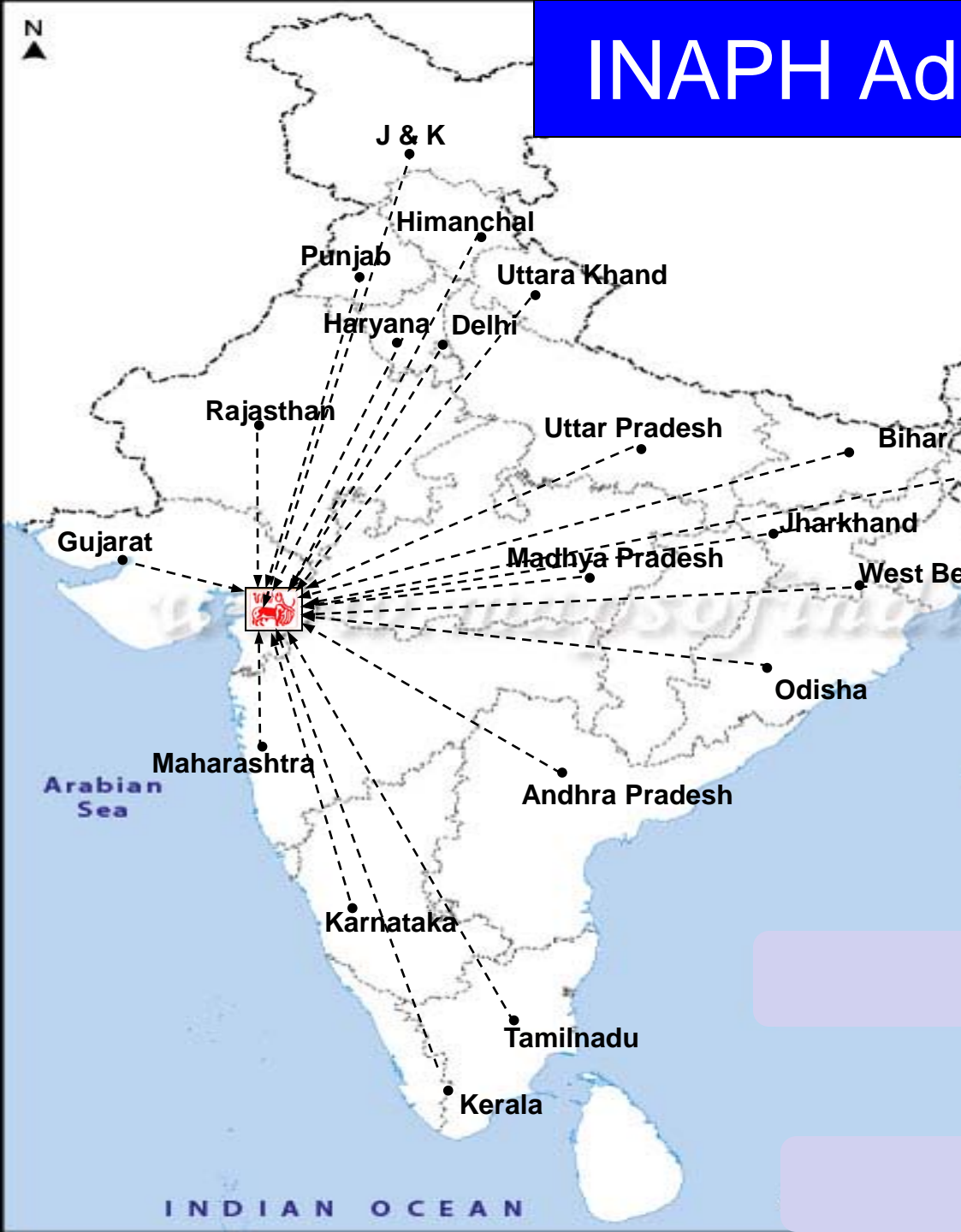


| Key Statistics as on 21st Feb' 2017 | |
|---|---:|
| Number of Projects | 199 |
| States covered | 20 |
| Districts covered | 289 |
| Villages covered | 44,965 |
| Number of Users | 42,076 |
| Farmers Registered | 43,66,210 |
| Animals Registered | 73,88,470 |
| AI Recorded | 62,08,641 |
| Calvings Reported | 12,78,740 |
| Milk Recordings | 19,25,062 |
| Vaccinations | 1,84,133 |
| Treatments | 5,65,332 |
| Ration Balancing | 1,44,98,607 |

Map labels: J & K, Himanchal, Punjab, Uttara Khand, Haryana, Delhi, Rajasthan, Uttar Pradesh, Bihar, Assam, Jharkhand, Gujarat, Madhya Pradesh, West Bengal, Odisha, Maharashtra, Andhra Pradesh, Karnataka, Tamilnadu, Kerala

Arabian Sea

INDIAN OCEAN

# Implementation Support

```
                    ┌──────────────────┐
                    │     INAPH        │
                    │   Technical      │
                    │  Team, NDDB      │
                    └────────┬─────────┘
                             │
                    ┌────────┴─────────┐
                    │     Central      │
                    │ Implementation   │
                    │  Team, NDDB      │
                    └────────┬─────────┘
        ┌──────────────┬─────┴──────┬──────────────┐
┌───────────────┐┌──────────────┐┌──────────────┐┌──────────────┐
│    South      ││    West      ││    North     ││    East      │
│ Coordinator,  ││ Coordinator, ││ Coordinator, ││ Coordinator, │
│    NDDB       ││    NDDB      ││    NDDB      ││    NDDB      │
└───────┬───────┘└──────────────┘└──────────────┘└──────────────┘
  ┌─────┼──────┬──────────┐
┌────────────┐┌────────────┐┌────────────┐┌────────────┐
│IT Officer, ││IT Officer, ││IT Officer, ││   - - - -  │
│   EIA 1    ││   EIA 2    ││   EIA 3    ││            │
└────────────┘└────────────┘└────────────┘└────────────┘
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**INAPH Portal/Help Desk**    **http://inaph.nddb.coop/**

# Capacity Building



Managers (PC, CRI )

Supervisors (DEO, DC)

Field Staff (AIT, MR)

Trainers Training by NDDB

Training of users by Trainers
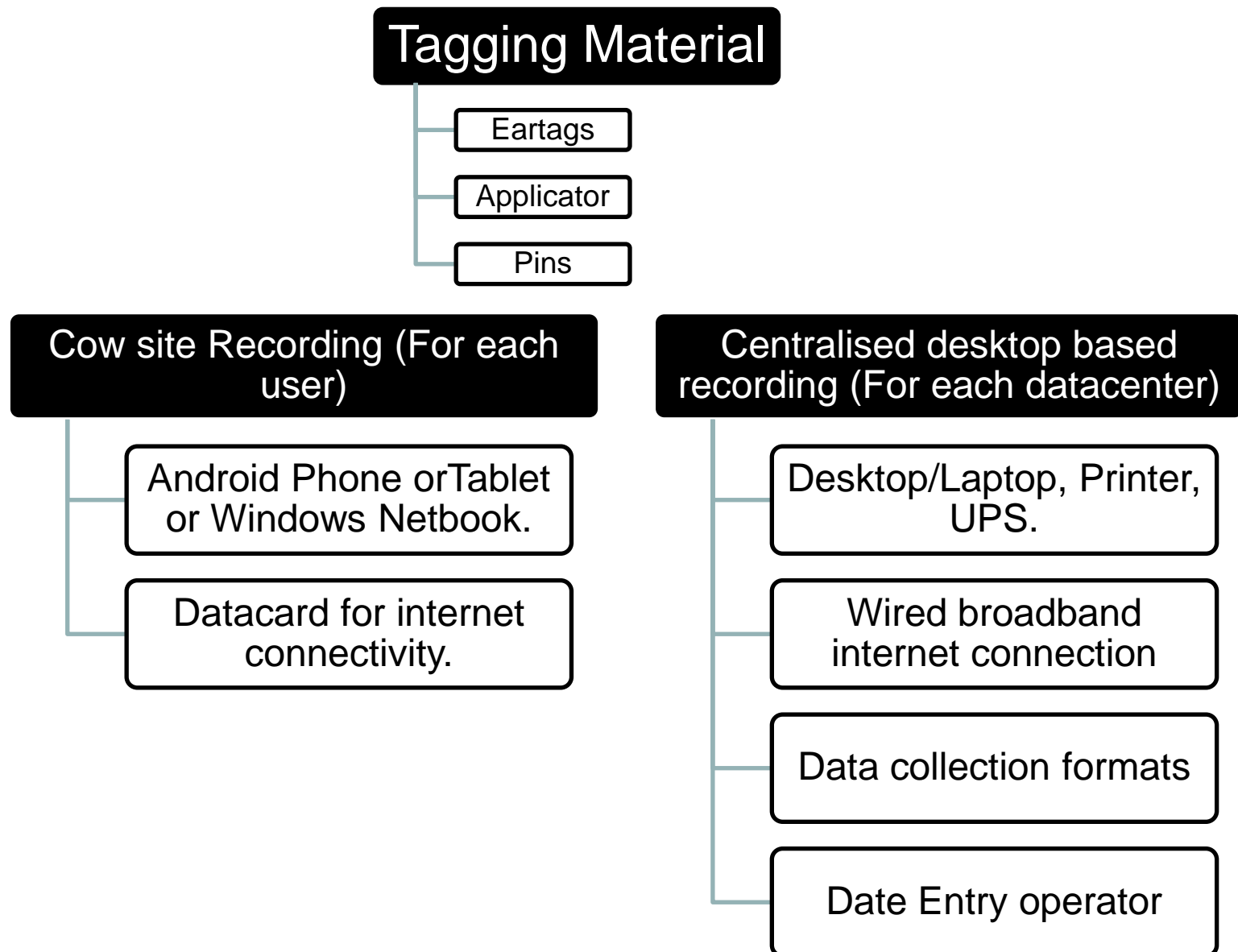
Refresher Training of users by Trainers
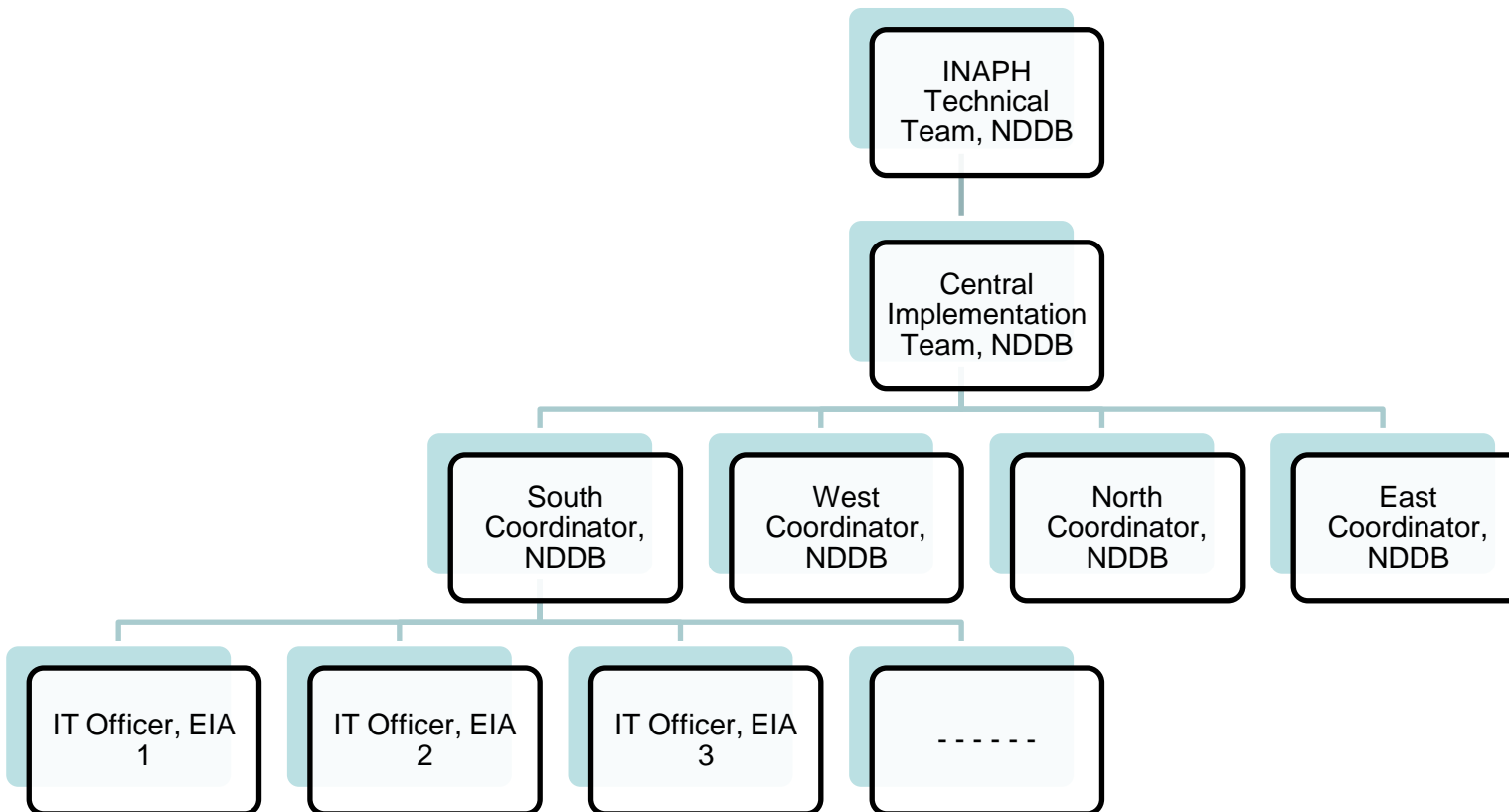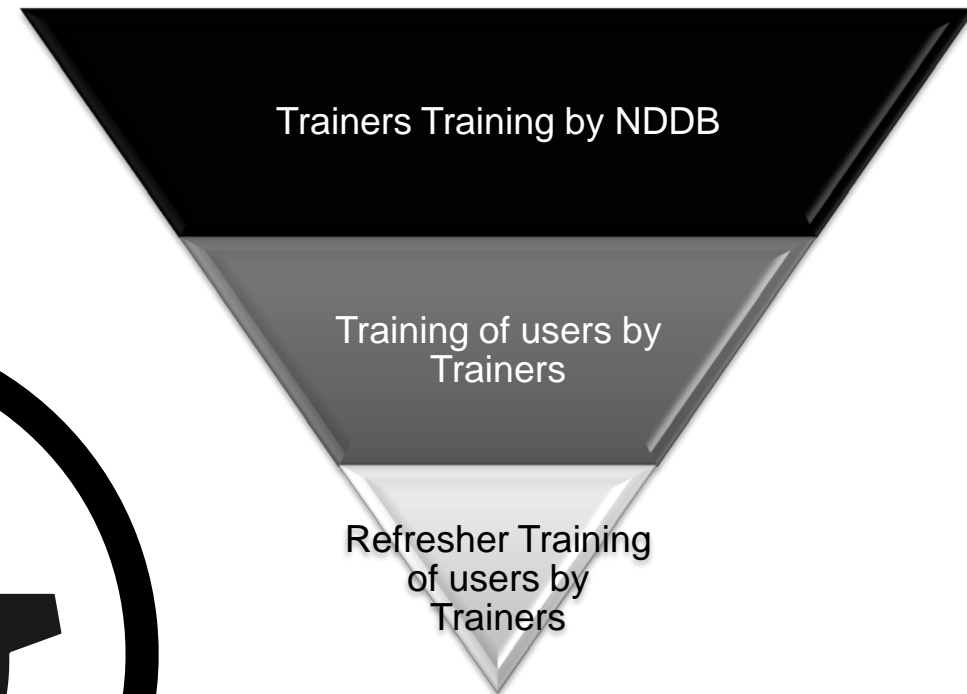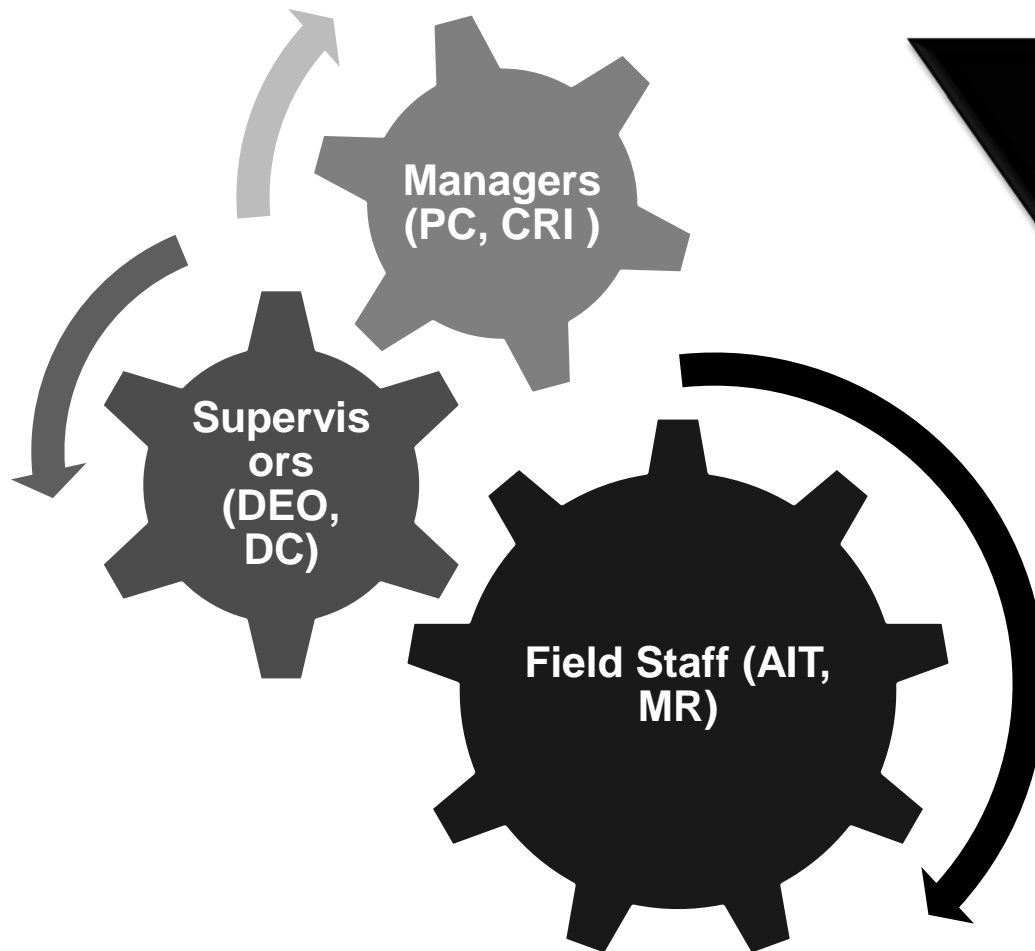
# NDDB Support

1. Delivery of INAPH Application.

2. Capacity Building (Training of Trainers)

3. INAPH Specific Technical Support.

# Pre-requisits & Infrastructure Requirements.

## Tagging Material

- Eartags
- Applicator
- Pins

## Cow site Recording (For each user)

- Android Phone orTablet or Windows Netbook.
- Datacard for internet connectivity.

## Centralised desktop based recording (For each datacenter)

- Desktop/Laptop, Printer, UPS.
- Wired broadband internet connection
- Data collection formats
- Date Entry operator

# Stepwise procedure for INAPH Implementation

1. Formal request by EIA to NDDB for use of INAPH. Communication of approval alongwith T&C to CEO of EIA.

2. Meeting with concerned officials of EIA & NDDB to discuss and finalize implementation plan.

3. Arrangement of infrastructure requirement by EIA as per timelines. Procurement of tagging material, hardware, internet, manpower etc.

4.(a)Arrangement of INAPH TOT program by NDDB at Anand.
(b) Arrangement of Enduser training program by EIA at district level.

5. (a) Creation of INAPH masters, users, bulls, AI centers etc on INAPH production server by NDDB in consultation with EIA.
(b) Preparation of mobile/tablet devices for each user. Database of all allocated villages will be transferred to the device.

7. (a) INAPH GO LIVE.
(b) Regular followup & Monitoring.

Information Network for Animal Productivity and Health
By NDDB

हिन्दी

MISSION MILK
NATIONAL DAIRY PLAN
THE NEXT REVOLUTION

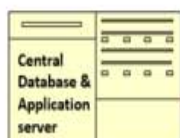| Home | About INAPH | Getting INAPH | Demo | Report | Pull SMS | FAQ | Support | Contact Us |



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## INAPH Introduction

• NDDB has developed an Information Network for Animal Productivity & Health (INAPH), a Desktop/ Netbook / Android Tablet based field IT application that facilitates the capturing of real time reliable data on Breeding, Nutrition and Health Services delivered at farmer's doorstep.

• It provides a tool for farmers, field functionaries, Union, Federation, NDDB to assess and monitor the progress of the project

Click Here To download **Pashu Poshan** android App.

For ear Tagging please contact nearest Veterinary centre or **LRP**

Central Database & Application server

Network at a glance

NDDB
• Analytical reports
• BV Estimation

## Login

# Thank You