

*“Poultry Value Chain Analysis for risk based and people centered control of HPAI in two recent HPAI affected district viz. Jalpaiguri (West Bengal) and Dhubri (Assam) of Eastern India”*

*Final report*

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## Table of Contents

Table of Contents.....	1
Acknowledgement .....	5
Executive summary .....	6
Introduction .....	9
Objectives of the study: .....	11
Description of areas covered under the study: .....	12
The Methodology:.....	14
Applied Tools: .....	14
The study approach and sampling guidelines:.....	15
The Work Plan: .....	18
Risk Analysis vis a vis deliverables: .....	18
Activities and Chronogram:.....	19
Study Limitations: .....	19
Findings of Rapid Situational Analysis: .....	20
Products considered for value chain analysis: .....	20
Findings of Situational Analysis: Jalpaiguri.....	20
Findings of Situational Analysis: Dhubri .....	22
Findings of Rapid Risk Analysis: .....	24
For Study Area: Jalpaiguri .....	24
For study area Dhubri:.....	29
Study Delimitation and Scope: .....	33
Description of value chain associated with live birds: .....	34
The live bird (Broiler) value chain diagram for Jalpaiguri taking Falakata and adjoining area as hub: .....	41
Trade route and movements of live bird / poultry inputs: .....	44
Estimation of trade: .....	45
Few observed Risky Practices within value chain and Economic drivers:.....	49
Description of Table Egg value chain:.....	55
The Table Egg value chain diagram for the study area:.....	58
Quantitative estimation of trade in commercial sector: .....	61
Observed risky practices and egg value chain players: .....	61
Value chain players and HPAI Control Point: .....	62
The Case of Falakata: .....	62
The Case of Dhubri: .....	70
Analysis of value chain constraints with respect to HPAI.....	71
Conclusion and Recommendation: .....	72

## Abbreviations and acronyms

DADF	DEPARTMENT OF ANIMAL HUSBANDRY DAIRYING AND FISHERIES
DOC	DAY OLD CHICK
FAO	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATION
FAO-ECTAD	EMERGENCY CENTRE FOR TRANSBOUNDARY ANIMAL DISEASES
FARMER	FELLOWSHIP FOR AGRI RESOURCE MANAGEMENT AND ENTREPRENEURSHIP RESEARCH
FGD	FOCUS GROUP DISCUSSION
GIS	GEOGRAPHICAL INFORMATION SYSTEM
GOI	GOVERNMENT OF INDIA
GPS	GLOBAL POSITIONING SYSTEM
HPAI	HIGHLY PATHOGENIC AVIAN INFLUENZA
LBM	LIVE BIRD MARKET
RA	RISK ANALYSIS
SA	SITUATIONAL ANALYSIS
SHG	SELF HELP GROUP
USAID	UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
WUAFS	WEST BENGAL UNIVERSITY OF ANIMAL AND FISHERY SCIENCES

## List of Annexure

ANNEXURE –I	FIELD DATA COLLECTION GUIDE
ANNEXURE - II	FOCUS GROUP DISCUSSION GUIDE
ANNEXURE-III	ATTRIBUTE GUIDE FOR RECORDING GPS LOCATIONS
ANNEXURE-IV	GLIMPSE OF GOVERNMENT INTERVENTION FOR PROMOTION OF FREE RANGE EGG FARMING
ANNEXURE-V	ESTIMATING TOTAL NUMBERS OF COMMERCIAL FARMS IN JALPAIGURI
ANNEXURE-VI	ESTIMATING TOTAL DIRECT EMPLOYMENT IN COMERCIAL POULTRY BUSINESS OF JALPAIGURI
ANNEXURE-VII	LIST OF STUDY TEAM MEMBERS

1USD = INR 55

## List of Figures

Figure 1 Level of operation and support system in commercial poultry industry .....	11
Figure 2 Top 5 administrative blocks in Jalpaiguri district in terms of number of regulated primary markets...	28
Figure 3 Commercial Farms in terms of number of birds.....	63

## List of Tables

Table 1 Five top administrative blocks in terms of per week placement of commercial DOC in Jalpaiguri district (Source: Focus Group Discussion at Falakata, July 2012) .....	26
Table 2 Number of Broiler farms in Jalpaiguri district as per Census, 2007 .....	27
Table 3 Five top administrative blocks of Jalpaiguri district in terms of cock and hen (Free-range, including improved birds) population (2007) .....	27
Table 4 Ranking (1-5) of administrative blocks in Jalpaiguri District in terms of human population .....	29
Table 5 Five top administrative blocks of Dhubri district in terms of cock and hen (Free-range, including improved birds) population (2007) .....	31
Table 6 Poultry feed price changes ( March –August 2012 ).....	40

## List of Pictures

Picture 1 Focus Group Discussions.....	16
Picture 2 Live ducks being sold in Jateshwar Market, Falakata .....	25
Picture 3 Local birds being traded in Jateshwar Market, Falakata .....	28
Picture 4 Trader aggregator bringing local chicken for sale in Jateshwar market, Falakata .....	34
Picture 5 A model night shelter for freerange birds kept for display at block Animal Health center, Nagrakata, Jalpaiguri .....	34
Picture 7 Family involvement in Poultry Farming in Jalpaiguri.....	37
Picture 8 Women in Poultry Farming (Dasabhuja Mahila Sangha, Jalpaiguri District) .....	37
Picture 9 Various people / business associated with poultry industry in Jalpaiguri.....	37
Picture 11 Vehicles for live bird transport at Falakata.....	38
Picture 10 A local farm at Nagrakata displaying notice regarding non acceptance of Bhutanese currency .....	38
Picture 12 Live birds being stocked in makeshift houses in Dhubri, (box shows dead birds) .....	49
Picture 13 Risky practices related to used litter material including re-use after sun drying on poultry farms...	50
Picture 14 Unhygienic makeshift poultry house in low lying areas in Falakata .....	51
Picture 15 Live bird carrying vehicle being loaded near farm .....	52
Picture 16 Unhygienic wet chicken retailing in unmarked areas of local market.....	52
Picture 17 Mixing of local chicken, duck and comercial poultry in local markets.....	53
Picture 18 Improper disposal of hatchery waste along side the boundary wall of a hatchery. ....	53
Picture 19 Unhygienic and high density transport of live birds .....	54
Picture 20 Transport of live poultry by passenger boat in Dhubri .....	54
Picture 21 Broken table eggs at dealers place .....	61

## List of Maps

Map 1 The study areas: Location in India.....	13
Map 2 Location of study area with political boundary .....	13
Map 3 of the locations of FGDs and KIs in Jalpaiguri District .....	17
Map 4 of the locations of FGDs and KIs in Dhubri district .....	17
Map 5 2008 HPAI outbreak area with location of commercial farms as on July 2012 .....	24
Map 6 Water bodies in Dhubri district .....	30
Map 7 Trade routes to and from Falakata .....	39
Map 8 Location of some feed mills in Jalpaiguri and Siliguri .....	42
Map 9 Location of some hatcheries in Jalpaguri and Siliguri .....	43
Map 10 Trade route of poultry product movement from Siliguri to Assam border through Falakata .....	44
Map 11 Siliguri as hub of poultry related infrastructure in eastern India .....	45
Map 12 Commercial egg trade hub of north Bengal .....	57
Map 13 Commercial table egg trade route .....	60
Map 14 Spread of sample farms in Falakata and adjoining areas .....	62
Map 15 Dealers vs Contract growing company set up in Falakata and adjoining areas of Jalpaiguri .....	64
Map 16 Commercial Farm growth Private dealers vs Contract farms in Falakata and adjoining areas.....	64
Map 17 Commercial farm spread in Falakata and adjoining areas (by farm size) .....	65
Map 18 Farm concentration .....	66
Map 19 Falakata town showing density of poultry related infrastructure.....	67
Map 20 Density of farms in a select area of Falakata, Jalpaiguri district .....	68
Map 21 Spread of live bird market vis a vis commercial farms .....	69
Map 22 Commercial Ready Live bird stock points in Dhubri .....	70

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The report draws heavily on opinions, suggetions, and the collective wisdom of FARMER fellows and partners.

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## Executive summary

The HPAI control measures have had varying degree of success in India with outbreaks continuing to be recorded in a number of states. It is important to take into account the role of incentives for reporting disease and the motivation for change of the private players in the poultry supply chain. The approaches till date rely mostly on public resources and institutional capacity and thus may be difficult to sustain for extended period of time, especially if HPAI were to become endemic.

The current study was aimed at understanding the poultry value chain in two districts of eastern India viz. Jalpaiguri (State of West Bengal) and Dhubri (State of Assam). The specific objective was to record the different sub-systems in the poultry value chain, qualitatively analysing the growth, constraints and performances in the context of HPAI. One of the other important objectives was to consult with key stakeholders to record the potential value chain upgrading option for HPAI control.

The study adopted a participatory approach and used tools like focus group discussion, key informant interview and geographical information system etc. Highly informal nature of value chain, non-linear supply system, and inadequate records necessitated use of innovative data collection methods. Short time frame of three months, political unrest and inclement weather within the study areas were few limitation of the study.

For select products e.g. live bird, eggs etc., the study identified stakeholders along the poultry value chain from farm to fork, the movement of products, relationships (or governance) and the motivation behind decisions people made.

The report highlighted the influential and diverse role of private dealers and contract growing companies, particularly in the commercial broiler chicken sector in Jalpaiguri. Large scale interstate import of live birds and the associated HPAI risk factors particularly for Dhubri district was highlighted. The emerging value chain facilitated by the government and private sector for bio-secure free range farming of improved birds was also recorded.

Using GIS technology, the report recorded and mapped the major poultry related infrastructure, trade routes with important locations for HPAI control related actions such as vehicle halting points, stock holding points etc. in both study areas. The GIS assisted sample study of commercial farm spread and the map of value chain infrastructures indicated the need for planned growth recognising the disease risk of high densities of farms and the haphazard growth of wet chicken retail points etc. The analysis of the value chain in Jalpaiguri indicated following constraints:

1. **The conflict between contract growing companies and private dealers:** In Jalpaiguri, aggressive low cost market intervention by contract growing companies ( 78% placement of DOC from own integrated facilities) clubbed with rising feed prices ( 33% increase in 6 months ) has resulted into squeezing of profit margin of private dealers. It is to be noted that the most of the private dealers besides managing own farms, many a time invest and act as active partner in the production and marketing process of client commercial farms. The

conflict between companies and private dealers is preventing collective industry-led actions to control HPAI. There are also limited perceived incentive and absence of mechanism for collective industry-led actions to control diseases.

2. **The unplanned growth:** The concentrated growth of production cluster which is dependent on only few captive markets makes the commercial farm sector in Jalpaiguri vulnerable to disease and external shock. There are also high numbers of local markets in close proximity of farms making such farms vulnerable to disease outbreak. The government offices entrusted with monitoring of growth are not in a position to act in absence of dynamic database of registered farms and other poultry related infrastructures.
3. **Poor infrastructure and investment:** Limited infrastructure to augment possible export to new markets within India and neighbouring countries is limiting the incentive for more organized, bio-secure and capital intensive activity. Poor investments on hygienic wet and processed chicken retailing are constraining growth in consumption.

In Dhubri, the constraints can be listed as follows:

1. **Highly informal inter-state trade:** Highly informal and perceived temporary nature of interstate trade of live chicken is preventing investments on proper transport and stocking facilities on the part of ready bird dealers.
2. **Impact of import surges:** The import surges from bordering districts of West Bengal make it tough for local commercial farms to compete.
3. **Limited demand side intervention in free range sector:** The district has the potential to augment free –range farming of local / improved chicken and duck. However there is inadequate supply or demand side intervention to streamline production and marketing.

The findings of the study were discussed with a number of local stakeholders to further understand the motivation behind some of the actions and decisions. The consultations helped in listing the HPAI risk related value chain upgrading option in terms of a 6 “I” framework viz. Institution, Incentive, Infrastructure, Investments, Innovation and Input.

Suggestions for Jalpaiguri following the framework included facilitation of collective industry led action through formation of new or strengthening of existing industry associations. Conditional cash transfer or making government financial support conditional upon the receivers’ positive action, was suggested to involve such associations in risk management and risk communication. The conditions in this regard can be the proactive role of the said institution for:

1. Registration of commercial farms and other trade related infrastructures under the supervision of government offices mandated by law.
2. Registration of vehicles used in live bird transport
3. Collective framing and implementation of rules for bio-security control particularly the prevention of high concentrations of farms and unhygienic retailing, both at roadsides and in markets.



#### 4. Periodic organization of awareness camps.

To ensure smooth credit delivery, planned growth of commercial farms and other infrastructure, it was suggested to declare Falakata and adjoining area as commercial production cluster. To prevent entry of disease, creation of common utility centres such as vehicle cleaning and disinfection facilities were suggested. Augmentation of investments in markets more particularly in wet chicken retailing and designed innovation for transport vehicles for safe transport of live birds to distant markets are other few suggestions that can lead to demand led growth as well as HPAI control in Jalpaiguri.

Suggestions for Dhubri for people centred, risk based control of HPAI include facilitation of demand driven import and safe stocking of live birds. The facilitation in this context is to eliminate ‘red tape’ and to take administrative measures to insulate the trade from trade politics and protectionist manoeuvring. Such facilitation will bring in confidence amongst live bird traders and government can engage with them to ensure bio-secure practices in stocking and transport besides investment in designed stocking facilities in appropriate localities.

To ensure incentive for backyard bio-secure free range farming both in Jalpaiguri and Dhubri, it was suggested to focus more on designed demand side intervention targeted at high value niche market. Collaboration with private players for continuous supply of pullets and extension services through network of brooder farms can help in meeting the existing supply side constraints.

The third and important dimension of risk analysis framework, the ‘risk communication’ is of significant importance for success of HPAI control. The current value chain study recorded role of various stakeholders, the relationships and motivation behind decisions they take. The learning can be shared during future facilitated risk communication workshops to develop a jointly owned (e.g. private and public sector together) communication action plan for each of the study areas.

To implement these above suggestions, it will be imperative for the government to consider the policy option of state intervention in resolving the conflict between contract growing companies and private dealers in case of Jalpaiguri and facilitation of demand driven interstate trade of poultry in case of Dhubri. The government action in Jalpaiguri can be justified from the point of view of preventing practices that may have adverse effect on competition and to promote and sustain competition in markets. As a welfare state, it is also imperative on the part of the government to ensure freedom of trade carried on by other participants in market as highlighted in the study findings.

For better implementation of the policy, the government should empower itself with a dynamic database of private sector stakeholders in both the districts. This is possible through engagement and institution building in private sector as suggested above. Periodic impact assessment in terms of private investment, disease control, consumer benefit and livelihood support will help government in reviewing the policy from time to time.

## Introduction

### The setting:

Poultry farming or raising of (commercial / traditional) domesticated birds such as chicken, ducks, turkeys for the purpose of producing meat or eggs for food is a common economic activity supporting employment of 1.6 million people<sup>1</sup> and livelihood of millions rural households in India. India is the fifth largest producer of eggs and ninth largest producer of poultry meat in the world.

Highly Pathogenic Avian Influenza (HPAI) in poultry has affected the industry in India for several years. The disease represents a significant public health concern. Mitigation responses to HPAI outbreaks in affected areas have been swift, rigorously enforced by Government. Most of the mitigation and control measures have been targeted to the supply side of poultry markets, which includes culling, banning of live bird movement, meat sales and mandating changes in husbandry practices.

The control measures have had varying degrees of success. The command and control approaches do not fully take into account the role of incentives and other private players in the food supply chain. The approaches till date rely mostly on public resources and institutional capacity and thus may be difficult to sustain for extended period of time, especially if HPAI were to become endemic.

Since 2010, the Food and Agriculture Organization of the United Nation (FAO) India, in partnership with the Department of Animal Husbandry, Dairying and Fisheries (DADF), has implemented the USAID funded project: “Immediate Technical Assistance to Strengthen Emergency Preparedness for Highly Pathogenic Avian Influenza (HPAI) to India”. The project goals are focused on improving disease surveillance and outbreak response capacity in India.

To support the above project, it was proposed to undertake a poultry value chain and risk assessment study in two high risk districts of eastern India viz. Jalpaiguri (State of West Bengal) and Dhubri (State of Assam). The Value Chain Analysis (VCA) focusing on disease risk reduction is an established approach and has been advocated as an important tool of people centered risk based control of HPAI.

FARMER (**F**ellowship for **A**gri-**R**esource **M**anagement and **E**ntrepreneurship **R**esearch) – a non government agricultural development organization, has been active in conducting HPAI outbreak related impact studies and trans-boundary HPAI risk analysis in eastern India. The organization signed a letter of agreement with FAO in June 2012 to conduct the Poultry Value Chain and risk assessment study as proposed.

An initial inception meeting was organized on 18<sup>th</sup> June 2012 with the participation of FAO representative and select group of experts drawn from diverse backgrounds to finalize study methodology and the work plan.

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<sup>1</sup> Mehta R Nambiar R.G et al (2003) Phase II of IFPRI-FAO project entitled Livestock Industrialization

## **The Value chain and Risk based, People centred control of disease**

The livestock value chain can be defined as the full range of activities involving different people that are required to bring a product (e.g. live animal, meat, milk, egg, day old chick, feed, medicine, leather, fiber, manure) to final consumers passing through the different phases of production, processing and delivery<sup>2</sup>. Networks and linkages in value chains that link production systems, markets and consumers constitute a contact network, which provides opportunities for the transmission of contagious diseases within and between sectors.

Animal disease prevention and control in national or at local farm level with a goal of ensuring animal and human health should be planned and implemented in proportion to the level of risk associated with a particular animal disease. It is unrealistic to implement a costly programme against a disease hazard that has low risk or low public health impact. Livestock sectors are constantly evolving in order to meet the changing needs of a globalized society. These processes can bring new and changing disease risk. Continuous evaluation of disease risks within the related livestock production systems, identifying the risk hotspots and measures to reduce those risks in a targeted manner is critical to achieve the goal of disease control.

People centered animal disease risk management means identifying the people involved (stakeholders ) in the concerned livestock sector and examining how they operate, how they perceive risk and what determines their risk profiles. It also means determining their resource base, the profitability of their business and their alternative opportunities, as well as their constraints in terms of regulation, resources, infrastructure and institutional support system.

In the context of risk based, people centered control of animal diseases, value chain analysis provides a practical framework. It helps in identifying key constraints (such as ability to pay etc) and opportunities (such as new markets etc) including the probability of disease transmission, likely socio-economic impact of risk reduction measures and the stakeholders who need to be involved or communicated with in order for an intervention to succeed.

## **Outline of Poultry Industry Structure in India:**

The commercial Poultry industry in India can be divided into five distinct operational levels. Most of the larger producers practice forward and backward integration with activities in one or more levels supporting each other. Large scale horizontal integration at the level of commercial farm by way of contract growing (known as “Integration farms”) is common in many states.

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<sup>2</sup> IDRC 2000

The following flow diagram (Figure-1) highlights various levels of operation in commercial poultry sector in India.

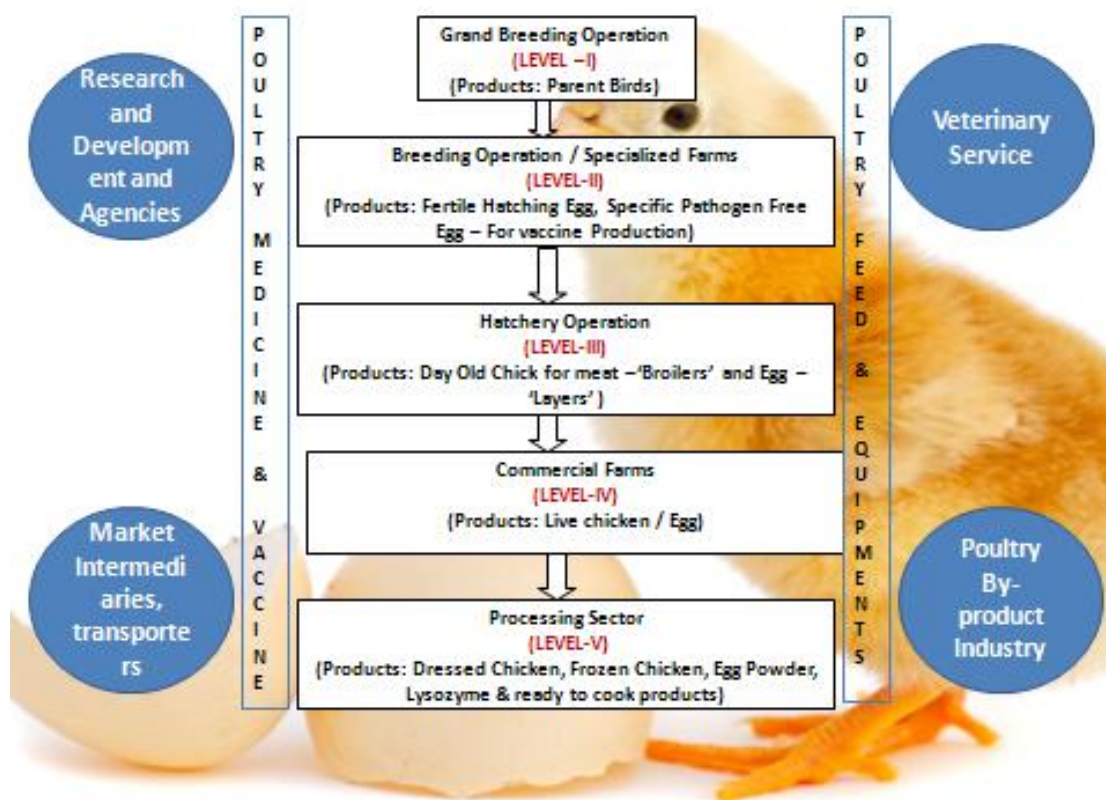


Figure 1 Level of operation and support system in commercial poultry industry

### Objectives of the study:

- To record the different sub-systems in the poultry value chain and to understand value adding, horizontal and vertical chain network structures including chain governance mechanisms;
- To qualitatively analyze the growth, constraints and performance of select value chains in the context of HPAI disease risk and identification of control points along the poultry value chain.
- To consult with key stakeholders on potential value chain upgrading options in the context of better control of HPAI.

## Description of areas covered under the study:

The study covered the following areas of Eastern India:

### Area 1: Jalpaiguri:

Jalpaiguri is an administrative district of State of West Bengal, India lies at the foothills with a strategic location sharing international boundaries with Bhutan and Bangladesh. The district has 3 subdivisions, 13 blocks and 734 villages. The district is sharply divided by the river Teesta and is crisscrossed by rivers Torsa, Mahananda and a number of hill rivulets. The total geographical area of the district is 6227 sq km out of which about 1987 sq km (32%) is tea garden (182 tea gardens). The recorded annual rainfall is 3736 mm and the temperature varies from 37° Celsius (maximum) to 6° Celsius (minimum). As per 2011 census, the human population of the district is 3.87 million with a density of 621 persons per sq.km. The district has highest concentration (55.58% as per 2001 census) of Scheduled Caste (SC) and Scheduled Tribe (ST) population within the state of West Bengal<sup>3</sup>.

Jalpaiguri is famous for three T's i.e. Tea, Tobacco, Timber.

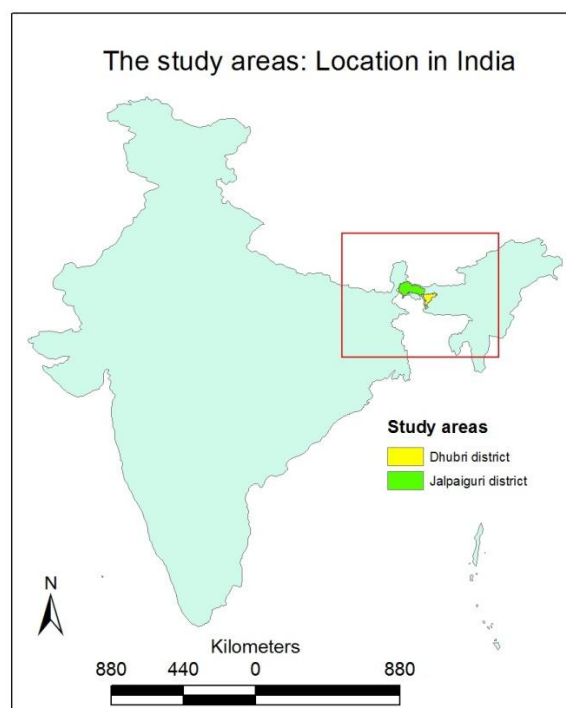
### Area 2: Dhubri:

Dhubri district is the gateway of the Indian State of Assam and is located strategically between Bangladesh and the Indian states of West Bengal and Meghalaya. Administratively the district has 3 subdivisions, 8 revenue circles, 14 blocks and 462 revenue villages. The Brahmaputra River divides the district into two parts i.e. Dhubri and Bilasipara sub-divisions in the north and South Salmara-Mankachar-Hatsingimari sub-division on the south bank. The total geographical area is 1664 sq km. The climate of the district is damp and humid. June and July are the months with the highest rainfall. The period from May end to October is considered the flood season. As per 2011 census, the human population of the district is 1.95 million with a density of 1171 persons per sq.km. In terms of literacy, with 59.36% the district ranks the lowest of the 27 districts in Assam.

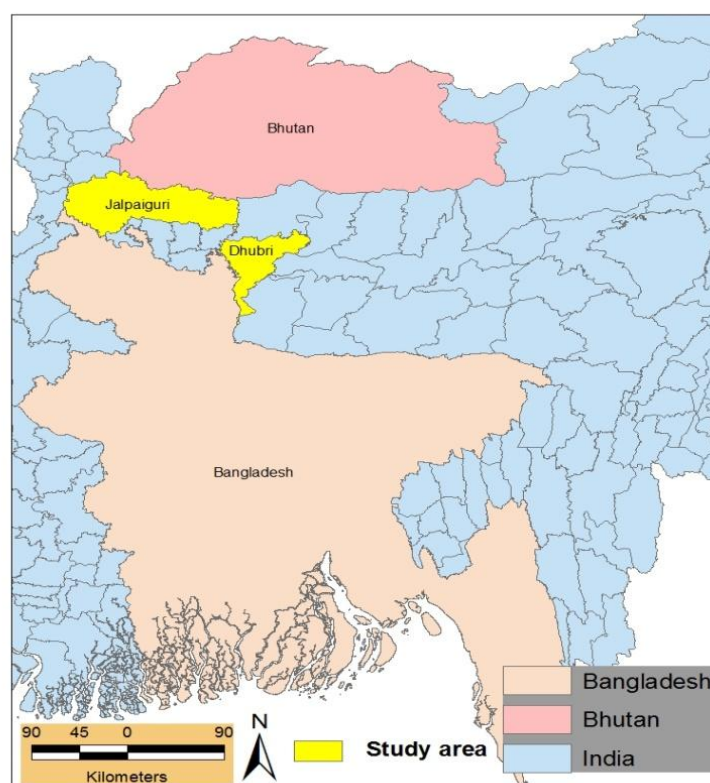
The district of Dhubri is primarily dependent on agriculture and forest products. The main source of income is paddy with surplus production above basic requirement. Jute and mustard occupy the major share of cash crops. From forest mainly timber and bamboo add to the income. Fish, milk, meat and egg make small contributions to the economy. Land revenue collection is very low, excise duty provides the lion's share of the Government exchequer.

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<sup>3</sup> These are the groups of historically disadvantaged people that are given express recognition in Constitution of India.



Map 1 The study areas: Location in India



Map 2 Location of study area with political boundary



## The Methodology:

The following study methodology was agreed upon during the project inception workshop.

1. Review of secondary data<sup>4</sup> on poultry production and trade system in identified areas.
2. Rapid Situational Analysis (SA), HPAI Risk<sup>5</sup> Analysis (RA). (To be conducted during pre-visit to the study area)
3. Expert consultation on preliminary finding of SA /RA and on required chain delimitation (focusing primarily on components and geography) in the context of study objective.
4. Defining of scope, investigation area with justification and finalization of plan for data collection.
5. One to one and focus group discussion with key informants using designed study guide
6. Analysis and report preparation
7. Local stakeholder validation in target areas.
8. Presentation of findings.

## Applied Tools:

For preliminary risk study a toolkit developed under the FAO-ECTAD project “Strengthening Regional Capacity to control and Prevent avian influenza in Asia and the Pacific” was referred to. The said toolkit was developed primarily for cross-border risk assessment and is based on following twelve (12) pre-defined risk indicators

1. Current presence of outbreaks of HPAI.
2. History of the presence of the disease in the area.
3. Surveillance activities in the area and effectiveness of control measures where applicable.
4. Presence of high-risk species, high-risk spots, or high-risk husbandry practices.
5. Movement of live poultry or poultry products within the area, across the border/s, and to other destinations.
6. Production clusters of poultry or poultry products.
7. Movement corridors and current or past presence of HPAI in the areas of origin of poultry and poultry products in the corridor.
8. Local and/or regional live bird markets (LBM) and/or poultry product markets.
9. Hubs of poultry and poultry products.
10. Highly-populated areas.
11. Regulatory framework, enforcement, and controls at border points and markets.
12. Permanent or temporal driving forces for cross-border trade.

<sup>4</sup> Government and Industry publications, previous and ongoing research on VCA, Route Maps, statistics on production clusters, surveillance statistics etc.

<sup>5</sup> Using FAOECTAD toolkit for cross border risk assessment

To assist in systematic secondary data collection during pre-visit to study location a field data collection guide was prepared. (Refer: Annexure-I).

To assist in field data collection as per objective of the study using participatory methods like Focus Group Discussion (FGD) and Key Informant Interview (KII), a detail guide was prepared for use by the field officers. (Refer: Annexure-II)

Information Technology based tools such as Geographical Information System (GIS) were used for detailed value chain mapping and risk analysis. The developed attribute guide for recording location of is enclosed in Annexure-III

Other tools extensively used during the study include:

- Informal expert opinion
- Direct observation (exploratory)
- Snowball Interviewing: to trace and identify all stakeholders involved in value chain
- Participatory mapping
- Seasonal calendar: To obtain temporal information such as seasonal variation in demand etc.

### The study approach and sampling guidelines:

It is a recognized fact that most parts of the poultry value chain in India are highly informal. Categories of actors are not always well defined. There are individuals doing multiple functions or dealing with different products. Traders are also highly mobile and very unlikely to respond to direct queries related to their business. Being an informal market, supply flows are likely to be non-linear and dynamic, changing from day to day. It is difficult to get representative budget information considering the non-linear supply system and inadequate records.

Considering all the above limitations of informal sector and the pre-requisites for successful use of most of the proposed research tools for the study, the following approach was adopted:

- Trust building with various stakeholders
- Strategic communication taking care of group dynamics and expectation
- Sensitivity to local languages and culture
- Transparent engagement with local contacts and periodic sharing of information

**Sampling:** Convenience and representative sampling methods were used to select a key informant or participants of a focus group discussion. The following sampling frame was adopted.



- List of contacts available from any active trader or a feed / medicine company sales representative active in the area.
- List of institutions as collected from the office of sub-divisional officer, district administration, district veterinary / rural development and industry departments.

For making the sample representative of society in general, care was taken to include respondents of different economic and social strata. Attempts were made to conduct KII and FGDs covering various identified administrative units within the district (Refer Picture 1 and Map 3 & 4)

A representative map of each district was prepared beforehand for ease of locating key informants/ FGD participants and to save time on travel.

**Procedure adopted for GIS data collection:** The following procedure was adopted for GIS data collection:

1. Expert consultation with key traders / officials of contract growing companies
2. Preparation of route map based on consultation
3. Orientation of accompanying trader / company representative regarding attribute table.
4. Movement through the pre-identified routes and recording GPS Points as per prepared attribute table.

No restrictions were made on sample size. The ‘snowball interviewing technique<sup>6</sup>’ was used extensively to get as many different value chain players and GPS attributes as possible.

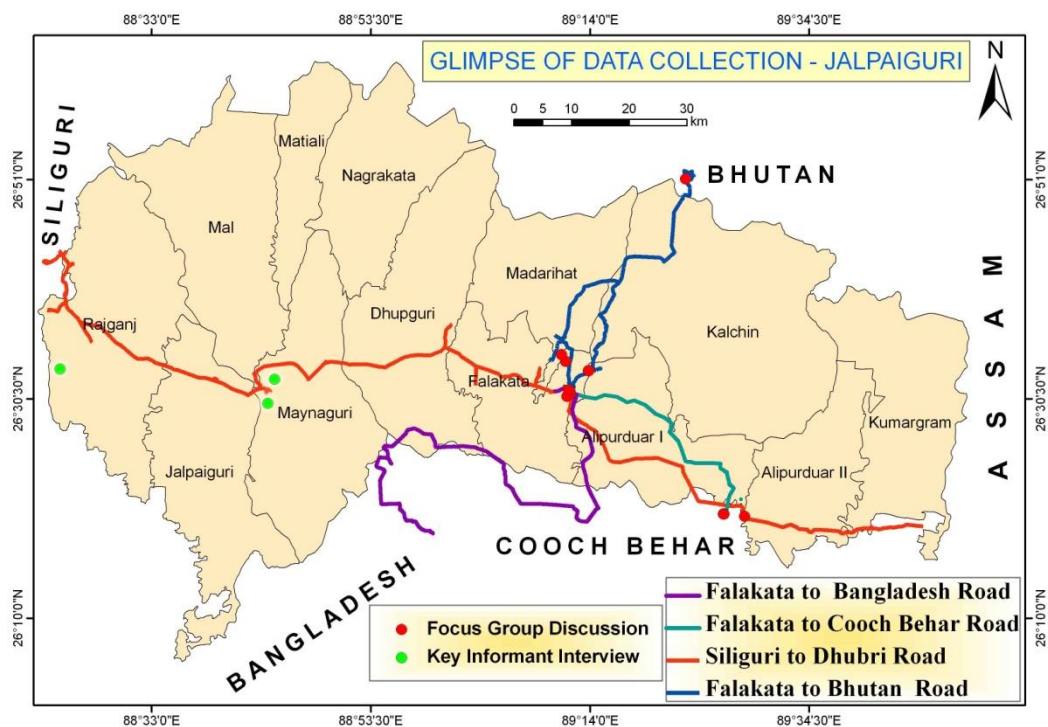
It is to be noted that where possible, all data were collected taking administrative block as the geographical unit. This is considering GOI action plan for control of HPAI which considers blocks as a geographical unit for routine surveillance.



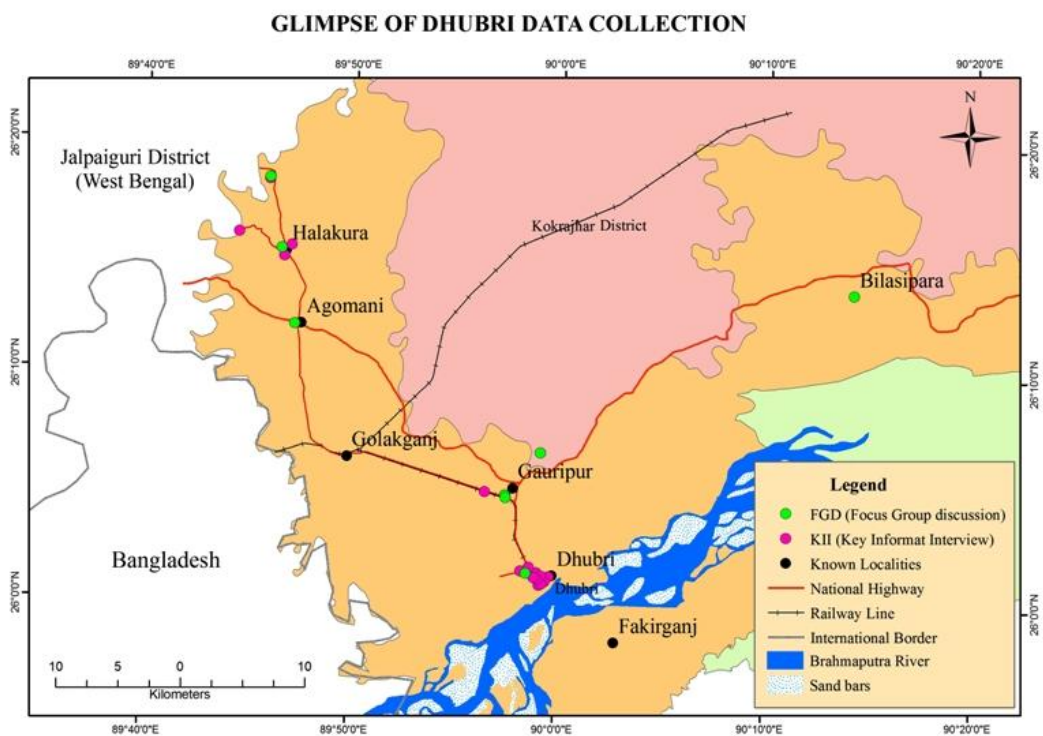
**Picture 1 Focus Group Discussions**

<sup>6</sup> Crawford I M ; Marketing Research and Information Systems ( FAO, 1997 )

Map showing GPS locations of FGDs/KIIs in the study areas.



Map 3 of the locations of FGDs and KIIs in Jalpaiguri District



Map 4 of the locations of FGDs and KIIs in Dhubri district

## The Work Plan:

### Risk Analysis vis a vis deliverables:

A risk analysis was conducted in the context of the study objective and targeted deliverables. The analysis and action was initiated across the following seven dimensions:

**People:** Attempts were made to ensure formation of a multidisciplinary research team with respect to responsibilities such as networking and communication, research design, data collection and administration. A list of research support group members is enclosed in Annexure-VII.

**Process:** Research process flow charts with timing and ownership of task were drawn to meet the deliverables.

**Technological:** Based on the proposed research methodology, technological options e.g. GPS devices, recorders etc. were reviewed to ensure data quality and system compatibility.

**Financial:** Attempts were made to draw a detailed plan of financial management to ensure timely funding of activities.

**Policy:** The research outcome and likely impact were reviewed vis a vis organizational policy and ongoing advocacy campaigns. Key government policies, current institutional level issues that are linked to informal poultry sector were also reviewed for better communication.

**Political:** A number of relevant political issues e.g. ethnic violence in Dhubri, agitations linked to proposed government policy on foreign direct investment in West Bengal etc. within the study areas were reviewed in the context of their likely affect on the project activities.

**Environment:** The environment related constraints such as floods in Dhubri District, road and security conditions in border areas were reviewed to inform decisions related to project activities.

## Activities and Chronogram:

SI No.	Activity Description	June		July					August				September		
		1	2	3	4	5	8	9	10	11	12	13	14	15	16
1	Review of secondary information, networking and trust building.	√	√												
2	Pre visit and Rapid Situational and HPAI risk Analysis			√	√										
3	Expert Consultation & Finalization of data collection work plan, FGD guide etc.					√									
4	Core group Meeting and Orientation of field team					√									
5	Data Collection						√	√	√	√					
6	Consultation & Analysis										√				
7	Draft report preparation											√			
8	Expert review, validation and finalization of report												√	√	√

NB: The study commencement date was 18<sup>th</sup> June 2012.

## Study Limitations:

The study had some limitations:

1. Short time frame
2. Limited access to digitalized maps, toposheets of study location for quality GIS map development.
3. Ethnic violence, political disturbances and environmental extremes within the study areas affected the movement of field teams.

## Findings of Rapid Situational Analysis:

### Products considered for value chain analysis:

Based on expert consultation, following products were considered for value chain analysis.

- Live Birds (Local / Improved Local / Broiler / Kuroiler birds<sup>7</sup> / Ducks / other birds ),
- Egg (Table Egg, Duck Egg, Hatching Egg),
- Day Old Chick / Duckling,
- Poultry Feed
- Medicine & Vaccines,
- Dressed / Processed / Frozen Meat
- By products such as poultry offal, feather, litter etc

### Findings of Situational Analysis: Jalpaiguri

#### Active Product:

1. There is a predominance of commercial broiler farming with no commercial layer farms within the district.
2. Eggs are imported from south India and neighbouring Coochbehar town acts as a major distribution hub for north Bengal and north east India.
3. There exists a highly organized operation related to poultry feed and production of day old chicks
4. Trading of local bird (Including Kuroiler or coloured birds for free range operation) and duck can be observed in live bird markets.
5. There is no organized use of poultry by products.

#### Location of Infrastructure:

6. Infrastructure related to poultry feed industry and hatcheries is located mostly in the Siliguri area in the adjoining district of Darjeeling.
7. Jalpaiguri district HQ has one Bio-Security Level-II laboratory for HPAI diagnosis. However, the facility is not yet fully operational.

#### Product flow:

8. 50 to 60% of live bird production in Jalpaiguri and Coochbehar area enters the lower Assam districts via the Boxirhut inter-state gate.

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<sup>7</sup> Birds developed for free-range rearing by Kegg farms Pvt Ltd., India

9. Interstate poultry related product movement to north eastern states through the Sri-rampur inter-state gate is much less compared to the Boxirhut interstate gate.
10. Point of origin for most of the poultry feed and day old chicks is Siliguri township. However, there are also supplies coming from Kolkata and Hajipur in Bihar.
11. The medicine, vaccines are supplied mostly by national level companies with Kolkata as the point of origin / despatch.
12. No functional processing plants exist within Jalpaiguri. Wet chicken retailing is a common practice. Frozen products are available in Siliguri township.

Geographical spread of activities, Initiatives & farm growth:

13. Of the 13 blocks within the district, commercial poultry farming is mainly found in 7 blocks viz. Falakata, Rajganj, Jalpaiguri, Maynaguri, Dhupguri, Alipurduar-1, Alipurduar-2
14. The remaining 6 blocks viz. Mal, Metialli, Nagarkata, Kumargram, Madarihat-Birpara, and Kalchini have negligible presence of commercial farms and are mostly tea garden and forest areas.
15. A number of improved backyard birds were distributed to SHG<sup>8</sup> beneficiaries by a project lead by West Bengal University of Animal and Fishery Sciences (WUAFS) in three blocks viz. Mal, Metialli and Nagrakata during 2008-09 as part of a GOI (Rashtriya Krishi Vikash Yojana ) sponsored program aimed at the development of a model backyard poultry farming system.
16. From the point of view of the commercial placement of day old chicks and the presence of market intermediaries, the ranking of blocks is as follows: Falakata ( 1<sup>st</sup> ), Alipurduar-1&2 ( 2<sup>nd</sup> ), Dhupguri ( 3<sup>rd</sup> ), Maynaguri (4<sup>th</sup> ), Raniganj& Japaiguri ( 5<sup>th</sup> )
17. Integration in commercial broiler farming ( contract growing by companies ) is predominant in blocks viz. Falakata, Alipurduar-1&2, Dhupguri and Jalpaiguri
18. A very high concentration of farms can be observed in Falakata and adjoining areas.
19. The concentration of wet chicken market is highest in Falakata and adjoining areas.

Stakeholders:

20. There are individuals doing multiple functions or dealing with different products.
21. Categories of private sector stakeholders in the business can be listed as:
  - Commercial private farmers
  - Farmers under company contract agreement
  - SHG members under government supported improved backyard poultry farming project.
  - Backyard local chicken farmers.
  - Dealers of feed, chick, medicine and equipment

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<sup>8</sup> Self Help Group : Group of 10-20 people providing mutual support for each other

- Sub dealers of feed & chick
- Ready bird dealer & wholesaler
- Retailers in wet chicken market
- Commission agents / *Pheriwalas* ( selling colored birds e.g. Kuroiler door to door )
- Transporters
- Contract growing company officials : Line supervisors, monitoring coordinator, trader contact officials
- Hatchery owners.
- Feed mill owners.
- Medicine and vaccine manufacturers
- Table egg wholesalers and retailers.

#### Key Issues and Governance Structures:

22. There exist conflict between local private dealers promoting commercial farms and companies promoting farms under integration contract.
23. There exists a very high level mistrust. Most traders feel insecure in the light of increased private sector investment in contract growing.
24. A number of companies are active in promoting farms under contract agreement for ready bird trading.
25. Supply flows are dynamic. Ongoing HPAI related trade restriction with Bhutan is hampering market growth.
26. No reliable representative budget information can be obtained from the informal sector traders considering non-linear supply system and inadequate records.
27. There exist formal associations of farmers and / or traders but they are not active.

### Findings of Situational Analysis: Dhubri

#### Active Product:

1. There is only limited number of commercial broiler farms.
2. There are no commercial layer ( egg ) farms
3. Village level production and stocking of local chicken / duck and eggs by trader aggregators is a common practice.

#### Location of Infrastructure:

4. There is no infrastructure, except one, now closed, hatchery cum feed mill under public sector funding.



Product flow:

5. A large number of live birds are imported daily into the district from adjoining north Bengal districts e.g. Jalpaiguri, Coochbehar
6. Eggs from south India via Coochbehar enter the district through interstate gate at Boxirhut.
7. The district is the transit route for all commercial poultry related products for distribution in Assam and other north eastern states.
8. Backyard poultry aggregated from various parts of the district enter Guwahati (Assam) market.
9. Availability of frozen chicken products is negligible in the local market.

Geographical spread of activities, Initiatives & Farm growth:

10. Of the 16 blocks within the district, commercial poultry farming is observed only in ‘Agomoni’ block. This block is near the border with West Bengal and is known for farms of local chicken and improved free range coloured broiler.
11. The local Krishi Vigyan Kendra is conducting trials on improved local chickens in the context of sustainable promotion in rural areas.

Stakeholders:

12. Categories of private sector stakeholders in the business can be listed as:
  - Commercial private farmers
  - Local chicken farmers ( backyard operation )
  - Ready bird dealer & wholesaler
  - Retailers in wet chicken market
  - Commission agents / retailers of egg.

Key Issues and Governance Structures:

13. Live chicken import surge is responsible for poor growth of local commercial farms.
14. Live chicken dealers / sub dealer are active players in the industry and set the rules.
15. Supply flows are dynamic. Distribution of imported live chicken also takes place through river routes to villages across the district.
16. There exists a high level of mistrust amongst various players. No reliable representative budget information can be obtained considering trust, non-linear supply system and inadequate records.
17. There are no formal associations of farmers or traders.



## Findings of Rapid Risk Analysis:

### For Study Area: Jalpaiguri

#### Risk Indicator: Current Status of HPAI & History of the presence of HPAI

The most recently notified outbreak in the north Bengal was at village Binay Krishnapally, Matigara, Darjeeling district during later part of December 2008 (date of declaration 2<sup>nd</sup> Jan 2009) affected two gram *panchayat* areas (Phulbari-I and II) of Rajganj block of Jalpaiguri district.

However, the last notified outbreak within the study district was observed during March 2008 (date of notification -27<sup>th</sup> March 2008). The outbreak occurred at village Saheber Kamar, Sampukuri Para of Jalpaiguri Sadar block. The area is close to Jalpaiguri town and very near to the confluence of river Karla and river Teesta. The Google map of the outbreak area (Map 5), prepared during the study, shows the recent establishment of 17 commercial farms (average 1200 capacity).



**Map 5 2008 HPAI outbreak area with location of commercial farms as on July 2012**

Note: Some of the farm points in the above map are not visible as they overlap each other

Date: 30th September 2012

There were newspaper reports of cases of unusual death in Falakata block (e.g. unreported non official culling of 2000 birds on a commercial farm at Bhoushir Danga area during January 2008).

Interaction during the initial field visit to Falakata area indicated that there are ongoing cases of high mortality, but they are hardly reported, identified and investigated.

It is to be noted that the latest outbreak of HPAI was notified in state of West Bengal on 19<sup>th</sup> September 2011. The outbreak occurred in two villages of Tehatta 1 block of Nadia district. Earlier during January 2010, an outbreak was notified in 12 epicenters in Khagram block of Murshidabad district.

The district of Jalpaiguri shares a border with Bangladesh where there 21 HPAI outbreaks have been confirmed in commercial farms till 5<sup>th</sup> April 2012<sup>9</sup>.

**Risk Indicator: Surveillance activities and effectiveness of the implementation of the control measures.**

Visit to various farms and interaction with stakeholders during the previsit as a part of rapid analysis indicated some degree of surveillance by government authorities particularly in the border areas of Jalpaiguri sadar block. This block has a history of a notified outbreak in 2008.

**Risk Indicator: Presence of High risk species, high risk spots or high risk husbandry practices**

Stakeholders informed that, apart from blocks such as Mal, Metialli and Nagrakata the population of high risk species / free range ducks is not very high in other areas of Jalpaiguri district. The study team recorded trading of local birds and ducks in Jateswar Market of Falakata. (Refer Picture 2).



Picture 2 Live ducks being sold in Jateswar Market, Falakata

<sup>9</sup> ECTAD Unit, Bangladesh, FAO

The field team recorded a number of high risk husbandry practices in commercial farms in and around Falakata and adjoining areas.

#### **Risk Indicator: Movement of Live poultry and poultry products**

Situational Analysis indicated large scale interstate export of live chickens from north Bengal districts to various parts of Assam. Coochbehar and Falakata area are the point of origin for most of the ready birds.

High commercial poultry density is observed in Falakata and in adjoining areas bordering Coochbehar. Several vehicles carrying live birds were spotted by the field teams during their visit from Falakata area to Dhubri in Assam via Boxirhat interstate gate.

#### **Risk Indicator: Presence of clusters of poultry and poultry products**

Focus group discussion with farmers and traders recorded a total of 7 blocks within the district that are showing growth of commercial broiler farms. Ranking of blocks (1<sup>st</sup> to 5<sup>th</sup>) in terms of placement of day old chick per week indicated Falakata and adjoining areas as the key commercial production cluster (refer table 1). The discussion also highlighted the fact that Falakata is the main hub of operation for both private dealers and contract growing companies. Many private dealers of Falakata area place day old chick in farms located in the bordering district of Coochbehar. The total per week placement of day old chicks in Jalpaiguri and parts of bordering Coochbehar district by Jalpaiguri based dealers and companies together can be estimated at 430000 numbers.

Administrative Block	Commercial DOC per week	Rank
Falakata	201000	1st
Alipurduar I&II	53000	2nd
Dhupguri	36000	3rd
Jalpaiguri	33000	4th
Rajganj	20000	5th

**Table 1 Five top administrative blocks in terms of per week placement of commercial DOC in Jalpaiguri district (Source: Focus Group Discussion at Falakata, July 2012)**

Considering minimum 365000 per week day old chick placement within Jalpaiguri district by all private dealers and contract growing companies together, the number of commercial farms can be calculated at 341 (Refer Annexure-V). As per 2007 census, the number of broiler farms within the district is shown in table 2.

Administrative Block	Number of Broiler Farms
Rajganj	125
Jalpaiguri	66
Falakata	65
Nagrakata	27
Maynaguri	4
Mal	3
Dhupguri	3
Madarihat	2
TOTAL	296

**Table 2 Number of Broiler farms in Jalpaiguri district as per Census, 2007**

The ranking of blocks (1<sup>st</sup> to 5<sup>th</sup>) in terms of population of local and improved free-range birds (cocks and hens only) indicates Jalpaiguri, Mal and Kalchini as main production clusters of free-range birds. Falakata which is the hub of commercial broiler operation as mentioned above ranks 11 out of 13 blocks in terms of population of free-range birds.

Administrative Block	Population of Cocks and Hens	Rank
Jalpaiguri	127030	1st
Mal	82320	2nd
Kalchini	79396	3rd
Rajganj	73165	4th
Madarihat	66208	5th

**Table 3 Five top administrative blocks of Jalpaiguri district in terms of cock and hen (Free-range, including improved birds) population (2007)**

**Risk Indicator: Presence of movement corridors and current and past presence of HPAI in the areas of origin of poultry products in the corridor.**

All commercial production clusters in Jalpaiguri area are dependent on the Siliguri area (partly falling under both Jalpaiguri and Darjeeling districts of West Bengal) and Kolkata for the supply of all inputs e.g. chick / feed etc. Siliguri area is also the hub for such supply to Assam and other north eastern states. Large numbers of vehicles loaded with live poultry, egg and inputs such as poultry feed are entering Assam and the north eastern states primarily through the interstate gate at Dhubri taking National Highway-37. It is to note that Siliguri and adjoining areas of the Indian state of Sikkim has the history of notified outbreaks during 2008 and 2009.

**Risk Indicator: Presence of Local and / or regional live bird markets (LBM) /or poultry product markets and their regulatory framework.**

As per available statistics<sup>10</sup> there are 201 regulated primary markets<sup>11</sup> in Jalpaiguri Districts. Poultry and poultry products are traded in most of these markets (Refer

<sup>10</sup> District Agricultural Marketing Board Website

<sup>11</sup> These are the markets located near centres of production of agriculture commodities, transaction mostly take place between farmers and traders



picture 3). Figure-1 indicates top five administrative blocks within the district in terms of number of regulated primary markets.

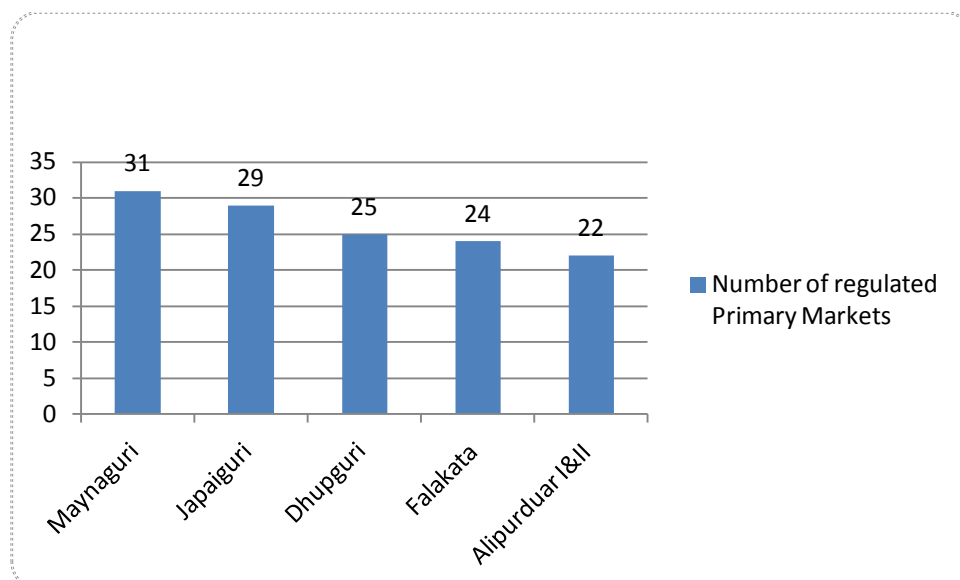


Figure 2 Top 5 administrative blocks in Jalpaiguri district in terms of number of regulated primary markets



Picture 3 Local birds being traded in Jateshwar Market, Falakata

Interaction with stakeholders indicated that, in markets there are no permanent sites for live bird trading or wet chicken marketing. Disinfection is rare. There is inadequate provision for waste disposal. Unannounced visits made to some of the markets indicated poor bio-security arrangements.

### **Risk Indicator: High human population**

In terms of human population (2001), the ranking of blocks are shown in table 4.

Administrative block (s)	Population ( Million )	Rank
Dhupguri	4.2	1st
Alipurduar I&II	3.9	2nd
Rajganj, Maynaguri & Jalpaiguri	2.8 each	3rd
Mal	2.65	4th
Falakata	2.54	5th

**Table 4 Ranking (1-5) of administrative blocks in Jalpaiguri District in terms of human population**

It is to be noted that Siliguri area –which mostly falls under Darjeeling district is the largest metropolitan city of north east India.

### **Risk Indicator: Permanent or temporal driving forces for trade:**

The initial discussions conducted in the study area indicated a large price differential of poultry products across borders between West Bengal and Assam. An estimated 50-60% of produce in Falakata enters Assam via interstate gate at Dhubri.

#### **For study area Dhubri:**

### **Risk Indicator: Current status of HPAI & history of the presence of HPAI**

A notified outbreak in Dhubri district occurred in September 2011 (date of notification - 8<sup>th</sup> September 2011). The epicentre of the outbreak was the village Bhamondanga part-I in the Agomoni block.

It is to be noted that earlier outbreaks of HPAI were notified in the state of Assam during late November 2008 with 18 epicentres in 10 districts. The affected districts included Bongaigoan which borders Dhubri.

The district of Dhubri has an international border with Bangladesh where there have been 21 HPAI outbreaks in commercial farms in 2012 to May<sup>12</sup>.

### **Risk Indicator: Surveillance activities and effectiveness of the implementation of the control measures.**

Available government data indicates HPAI surveillance within the district is primarily carried out in the border areas only.

A veterinarian of the state veterinary dispensary at Agomoni block (the epicentre of 2011 outbreak) informed that surveillance activity in backyard farms has been carried

<sup>12</sup> ECTAD Unit, Bangladesh, FAO

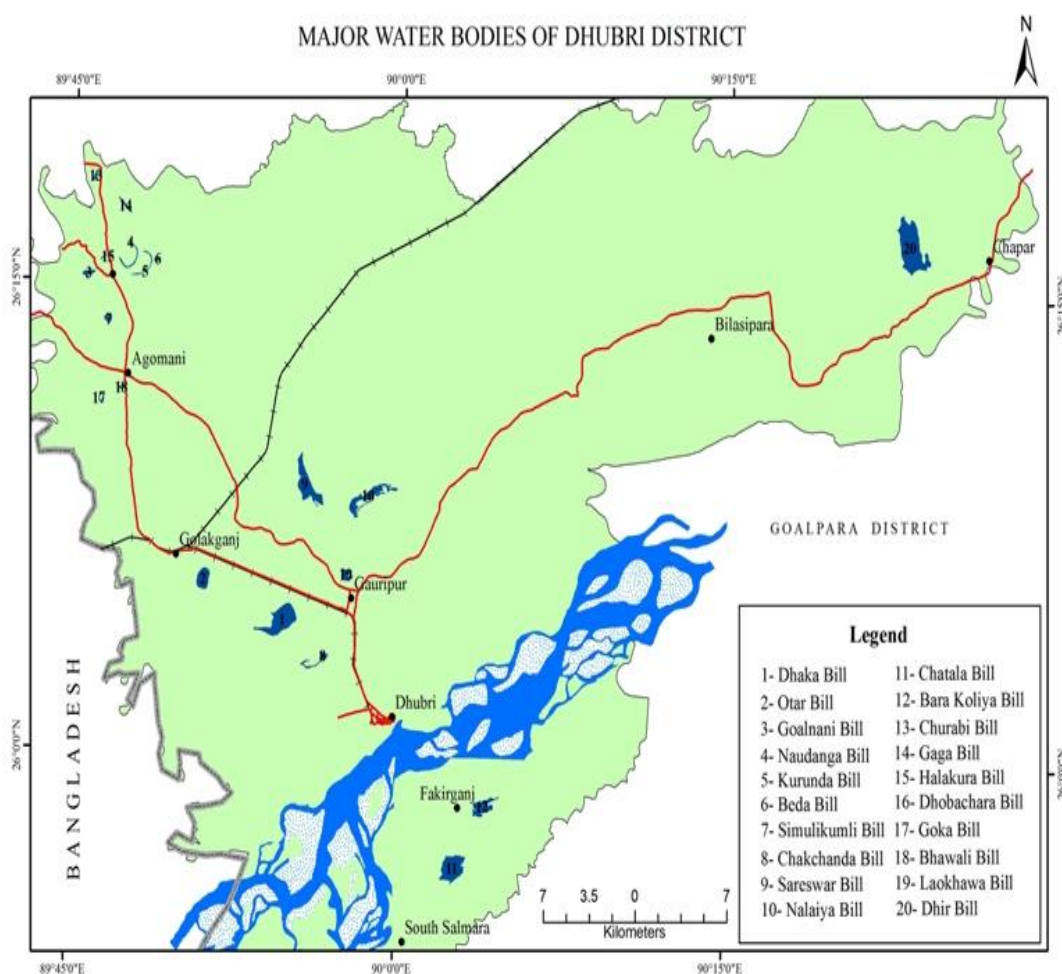
out within the block on a regular basis (4-5 random sample collection every month) covering 63 villages having 17017 households within the block.

### **Risk Indicator: Presence of High risk species, high risk spots or high risk husbandry practices**

According to 2003-04 government of Assam sample survey, total poultry population of Dhubri district is 545813 fowls and 195284 ducks. Because of availability of water bodies (refer Map 6) duck rearing is common in the district. The total production of eggs (from backyard farms) in the district is 2.17 million (2007).

Chakrashila wild life sanctuary<sup>13</sup>, known for wild birds, is located in both the Dhubri and Kokrajhar districts of Assam. The district of Dhubri is also known for around 20 major water bodies. Out of these water bodies 10 water bodies are located around ‘Agomoni’ areas. (refer Map 6)

Birds of both indigenous and visiting variety throng these water bodies particularly from mid September onwards.



**Map 6 Water bodies in Dhubri district**

<sup>13</sup> Covering an area of 53 Sq km

The field team recorded a number of high risk husbandry practices in backyard farms as well as ready live bird stock points maintained by dealers within the Dhubri town.

#### **Risk Indicator: Movement of Live poultry and poultry products**

Situational Analysis indicated large scale interstate export of live chicken from north Bengal districts to various parts of Assam via Dhubri.

Several vehicles carrying live birds were spotted by the field team during their visit from West Bengal to Dhubri district of Assam via Boxirhut interstate gate.

#### **Risk Indicator: Presence of clusters of poultry and poultry products**

Discussion with various stakeholders indicated that, there are no prominent commercial production clusters of poultry and poultry products within the district. However, there is growth with a few commercial broiler units and colour bird (*Kuroiler*, kept as free-range birds) farms in Agomoni block. The ranking of blocks (1<sup>st</sup> to 5<sup>th</sup> is shown in Table 5) in terms of population of cock and hens (local and improved) indicate South Salmara, Bilasipara and Bagribari as the main production areas.

Administrative Block	Population of Cocks and Hens	Rank
South Salmara	155707	1st
Bilasipara	86453	2nd
Bagribari	70605	3rd
Mancachar	65698	4th
Golakganj	47469	5th

**Table 5 Five top administrative blocks of Dhubri district in terms of cock and hen (Free-range, including improved birds) population (2007)**

#### **Risk Indicator: Presence of movement corridors and current and past presence of HPAI in the areas of origin of poultry products in the corridor.**

Situational Analysis indicated that nearly 60% of live bird production from previously HPAI affected poultry clusters in Siliguri and Jalpaiguri area of West Bengal is entering Assam through interstate check gate at Dhubri.

#### **Risk Indicator: Presence of Local and / or regional live bird markets (LBM) /or poultry product markets and their regulatory framework.**

Markets in Gauripur (Chaurongimore), Dhubri town, Bilasipara, Halakura (Agomoni block) and Chapor can be identified as a prime markets within the district for live bird trading.



In Assam, the ownership and management (normally through a lessee) of rural weekly markets, primary and secondary wholesale are governed by multiple acts. This creates problems in implementing uniform development and regulatory provisions<sup>14</sup>.

Interaction with stakeholders and visits to markets in Gauripur, Bilasipara, Dhubri and Halakura indicated poor infrastructure and market management. Disinfection is rare. There is inadequate provision for waste disposal.

**Risk Indicator: High human population**

As per 2011 census, Dhubri is the second most populous district in Assam (population 0.195 m) with the highest percentage decadal growth rate within the state i.e. 24.40%. The district is also second in the State in terms of density of population - 1171 persons per sq km.

Block wise population figures of the district could not be authenticated.

**Risk Indicator: Permanent or temporal driving forces for trade:**

The initial discussions conducted in the study area indicated a large price differential of poultry products across borders between West Bengal and Assam. An estimated 50-60% of produce in Falakata alone enters Assam via the interstate gate at Dhubri in Assam.

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<sup>14</sup> Agricultural Marketing System in Assam , Research Report ( 2011-12 ), NIAM, Jaipur, GOI

## Study Delimitation and Scope:

Based on recorded findings of situational and preliminary risk analysis, an expert consultation was organized to undertake a chain delimitation focusing primarily on components and geography.

Considering the movement of products through the study areas, it was also suggested to explore commercial egg value chain in the context of trade route, volume of trade, stakeholders and risky practices.

Geographically, it was proposed to record value chain activities of the study area taking two blocks with adjoining areas as the focus viz. ‘Falakata’ in Jalpaiguri district of West Bengal and ‘Agomoni’ in Dhubri district of Assam. Selection of samples from adjoining areas will be based on common routes suggested by key private traders or contract growing company officials.

It was suggested to include relevant areas of Siliguri town (mostly under Darjeeling district of West Bengal) in the context of movement corridor and point of origin of both live bird and farm inputs.

The justifications for selection of the above two blocks for detail study are listed as follows:

For Falakata:

- Highest placement of day old chick and high concentration of small scale ( sector-3 ) commercial farms
- Strong trade link / poultry and poultry product supply source for international ( India –Bhutan ) and inter-state trade of live bird ( between West Bengal and Assam )
- Hub of poultry trade related activity in Jalpaiguri district
- Location of branch offices of majority of companies active in contract growing.
- Inadequate surveillance and Informal reported cases of occasional poultry deaths.

For Agomoni:

- Only administrative block within the district having notable commercial broiler farms.
- Epicentre of 2011 HPAI outbreak in backyard farms.
- Close to Inter-state border with West Bengal
- Presence of water bodies with history of visit of migratory birds.

## Description of value chain associated with live birds:

### JALPAIGURI:

There are two distinct sub systems in Live Bird value chain within Jalpaiguri.

- A. System linked to free-range birds (backyard production from local / improved fowl)
- B. System linked to commercial broiler birds.

### Stakeholders:

Stakeholders for free range sub systems include rural households, self help groups<sup>15</sup>, non government organizations, trader aggregators (refer picture 4) , retailers and consumers.



**Picture 4 Trader aggregator bringing local chicken for sale in Jateshwar market, Falakata**

From 2008 to 2010, the Government of West Bengal has implemented a major project to promote improved dual (meat and egg) purpose birds for free-range rearing. The project aimed to create a high value sustainable market linked value chain targeting niche urban segments (refer annexure V). It was expected that success of the endeavour is likely to provide an incentive for farmers to engage in scientific rearing of backyard local birds (refer picture 5). As in other parts of the state, a number of field communicators, service providers, facilitating development agencies (e.g. *Panchayats*) were engaged under the program in



**Picture 5 A model night shelter for freerange birds kept for display at block Animal Health center, Nagrakata, Jalpaiguri**

<sup>15</sup> Group of 10-20 people providing mutual support for each other

three identified blocks of Jalpaiguri district viz. Mal, Metiali and Nagrakata.

The key informant interviews conducted at Nagrakata revealed that the local farmers participated enthusiastically in the project. The government agencies collaborated with few private parties to set up brooding units. Feeds and other input were distributed to beneficiary farmers. Trainings were provided covering areas of management, housing and bio security. Inappropriate scheduling of project activities, inadequate stakeholder engagement, commitment on the part of selected beneficiaries and poor communication strategy were recorded as major bottleneck for the success of the project. The project however, contributed in terms of knowledge dissemination and asset creation.

The study also recorded a private sector endeavour to promote coloured dual purpose birds meant for free-range rearing named as Kuroiler. Mother farms for brooding (production of growers) and backyard free-range farms of grower birds are available mostly in Maynaguri and adjoining areas. The private company engaged in this activity at national level maintains a 30000 weekly production capacity hatchery near Siliguri. The stakeholder under this private arrangement includes, company officials, dealers, mother (brooding unit) farm owners, farmers (rural households) and independent trader aggregators. Existence of another category of stakeholder called as *Pheriwalas* (one who sells Kuroiler pullets or growers for rearing to interested rural house holds door to door) as claimed by the company in other areas of the country could not be established within the study areas.

Large numbers of commercial broiler farms are visible covering 7 administrative blocks of Jalpaiguri District viz. Falakata, Rajganj, Jalpaiguri, Maynaguri, Dhupguri, Alipurduar-1, Alipurduar-2. The concentration of such commercial farms is highest in Falakata and adjoining areas. These farms can be primarily grouped into two type's viz. private independent and farms under contract arrangement with companies. The number of commercial farm as calculated from a sample study and reported total placement of DOC by dealers and contract growing companies together is around 341 (Refer Annexure –V). The percentages of private farms and farms under contract arrangement are 58% and 42% respectively.

The private independent farms are supported by a dealer network covering all 7 blocks mentioned above (15 numbers of dealers and 13 number of sub-dealers were recorded in Jalpaiguri during the study period). Sub-dealers are mostly active in areas which are not within direct reach of dealers.

The study recorded 7 active companies who are engaged in contract growing operations within Jalpaiguri district including Siliguri areas. The companies engaged in contract growing operations maintain their own sales and technical staff. In a few places self help groups and non government institutions are also maintaining commercial broiler units either privately or under contract arrangement with companies. The numbers of such farms are however, limited. It is to be noted that, most dealers also maintain their own commercial farms.

The dealers and contract growing companies are actively engaged with live and dressed chicken trading. This includes inter-state and international export to Bhutan through independent dealers in destination places. The study recorded up to 12 such live bird or ready bird dealers who maintain trade links with dealers in various parts of Jalpaiguri and Coochbehar for distribution of imported birds to destination places (mostly the state of Assam). The export market of dressed chicken to Bhutan was recorded as one of the early economic drivers for growth of farms in Falakata and adjoining areas. No export of dressed chicken or live bird was recorded during the study period owing to the HPAI related trade ban imposed by Bhutan.

The dealers and contract growing companies support wholesalers, contractors for industrial supply and retailers in local wet chicken markets. Large number of road-side chicken retailing centres are also visible many of which receive birds from nearby private farms. The study recorded a total of 186 retail points across places including Falakata, Baganbari, Dalimpur, Jateshwar, Birpara, Lanka Para, Sisubari, Rangali Bazna, Madarihat, Hashimara, Dalsingpara, Salbari, Morangamora, Dhupguri and Maynaguri

#### **Vertical and horizontal networks:**

Supporting value chain of feed exclusive for free-range birds is limited. Government initiatives are being made in Jalpaiguri to supply feed to areas where free-range rearing of improved birds is being promoted.

A large part of farm inputs for commercial farms are being produced by the 12 feed manufacturers, 9 Hatcheries located within Jalpaiguri district (along with Siliguri). Farm appliances e.g. feeding troughs, waterers etc, animal health products (produced largely by national level companies) are mostly entering the region from Kolkata. It is to be noted that day old chick and poultry feed are also entering Jalpaiguri (also Siliguri) from Kolkata. Large numbers of company officials, stockist, transporters and commissioned agents facilitates movement and distribution of these farm inputs.

The study recorded, import of jute bags from neighbouring Bangladesh for use as packaging material for poultry feed. Used jute bags at farms are collected by small time traders for their re-use in sectors other than poultry. Large quantities of plastic curtain to control wind / netting materials are being regularly used by commercial farms. There exists a number of skilled bamboo craftsman and tailors (for stitching of plastic curtains) who earn a livelihood out of their engagement with poultry industry. Many farms are growing with involvement of family labour (refer picture 7). Women are also found to be taking up commercial broiler farming as group activity (refer picture 8). Large numbers of people are getting employment within poultry industry within the district as transporter, helpers and labour in poultry input and live bird distribution business (refer picture 9). The direct employment under poultry and allied sectors within Jalpaiguri can be estimated to be 1500. (refer Annexure-VI)





Picture 6 Family involvement in Poultry Farming in Jalpaiguri



Picture 7 Women in Poultry Farming (Dasabhuja Mahila Sangha, Jalpaiguri District)



Picture 8 Various people / business associated with poultry industry in Jalpaiguri

### Product Movement: Commercial live bird:

Up to 60% of total produce from Falakata and adjoining areas are entering Assam via the Boxirhat interstate gate. There is also movement of live birds from Siliguri to Assam and other north east states via the Sri Rampur interstate gate, live birds from Falakata and adjoining areas of Jalpaiguri rarely enter Siliguri for local and inter-state trading.

Farm inputs such as DOC and feed are also entering Siliguri and Jalpaiguri area from Kolkata and Hajipur in Bihar. There are occasional instances where hatcheries in Assam are supplying DOC to traders at Falakata.

There are a number of trade routes to and from Falakata (refer Map 7). History indicates earlier export of dressed chicken from Falakata to Bhutan as for religious reason live chicken trade with Bhutan is not allowed. Such trade is now closed due to the HPAI related ban imposed by the Bhutan Government. It is also to be noted that because of INR

rationing, exchange of Bhutanese currency Nyugen

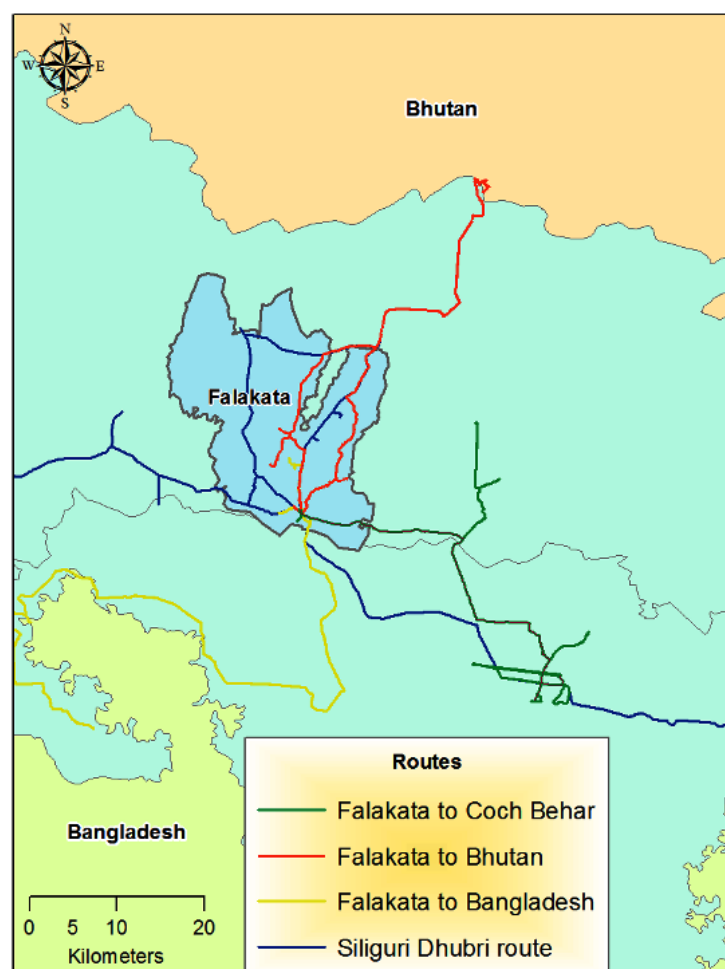
(Nu) to the Indian currency of Rupee is no longer easy (refer picture 8). The same is already hampering poultry and related trade e.g. mostly import of farm inputs between India and Bhutan. No formal trade related movement of live bird takes place between Falakata area and Bangladesh.



Picture 9 A local farm at Nagrakata displaying notice regarding non acceptance of Bhutanese currency



Picture 10 Vehicles for live bird transport at Falakata



**Map 7 Trade routes to and from Falakata**

### **The Relationships, Chain Governance in commercial live bird Sector:**

Private dealers and companies undertaking contract growing operation command the entire commercial operation. The private dealers are constantly in touch with client farmers, feed and medicine company representatives etc. either over phone or in person. Skilled involvement on their part, vibrancy in activity and business transactions are obvious. The private dealers themselves or their appointed staffs take care of handholding of farmers including guidance on medication. The fact that private dealers and contract growing companies decide on use of inputs in most cases indicate their important role in finish product quality. There is practice of free-lance agents being paid commission for motivating prospective farmers to undertake commercial farming. The agents bring the prospective farmers (future clients) to private dealers and company officials. However, no such agents could be contacted during the study.



There exists fierce competition between private dealers and companies engaged with contract growing operation, popularly called ‘integration operation’. The companies have mobilized large number of farmers in the last few years for organized contract farming. Many of these farms were earlier under the control of private dealers. The companies are investing heavily in vertical integration such as setting up feed mills and hatcheries. The total placement of day old chicks by companies is now higher than the placement by private dealers. All these factors give the companies an edge over private dealers on price of finished live birds and in managing supply dynamics. The companies place day old chicks at the contracted farm based on written agreements. It is to be noted that the company officials viz. ‘line supervisors’ assist the contracted farmer to maintain farm progress and ensure the regular supply of company branded / co-branded feed and medications. The contracted farmer gets a fixed return per bird.

Some private dealers are raising the issue of a level playing field in the light of increasing competition from contract growing companies. The feeling of insecurity is evident and this is hampering investments by private dealers. The sharp 33 % increase in prices of feed ( see table 6 ) in last six months, supplied by private companies (many of whom also maintain contract growing operations) is reducing the profit margin of private dealers markedly. The sudden closure of trade with Bhutan, where most of the private dealers were engaged has created further problems for private dealers.

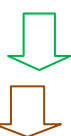
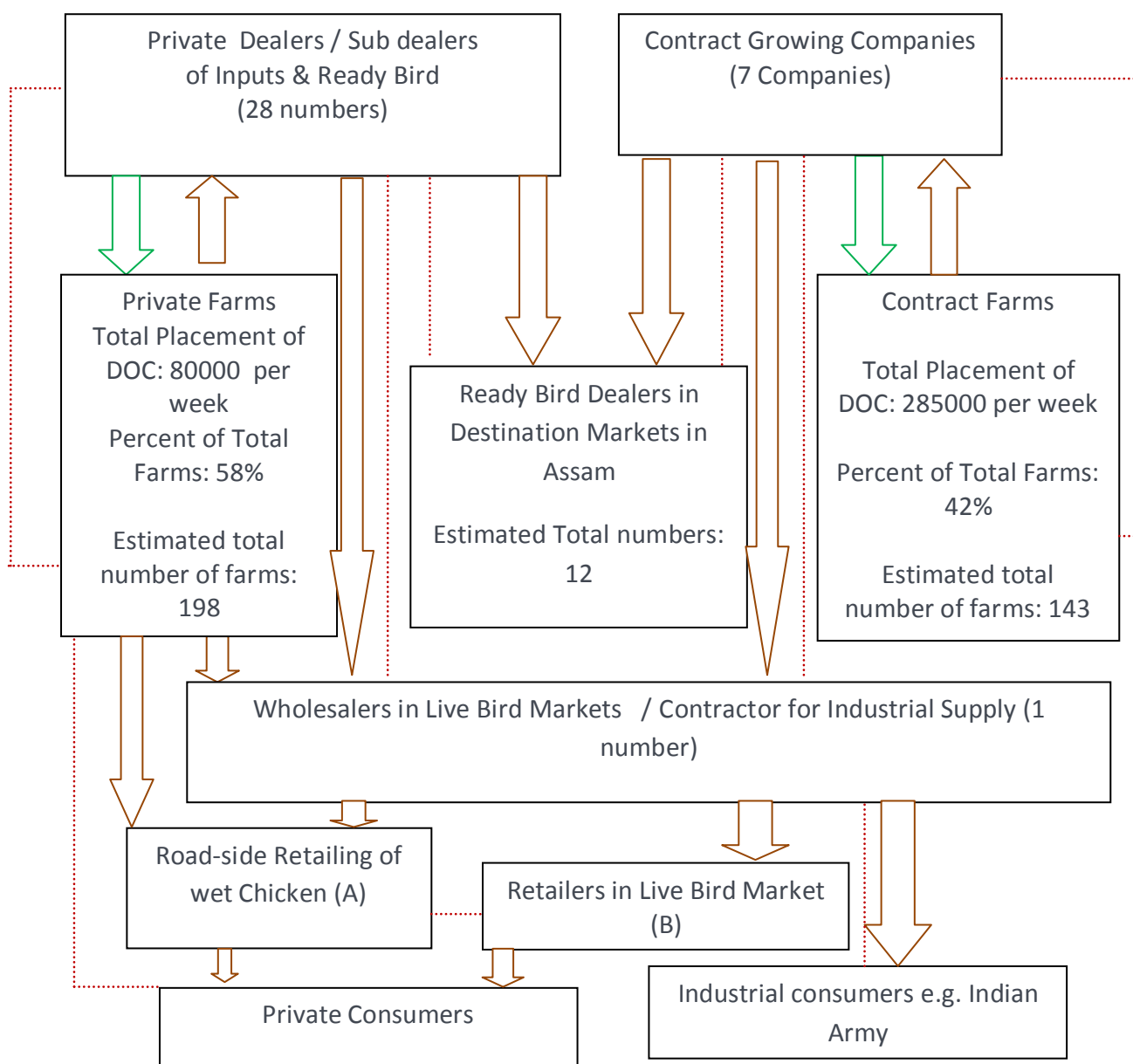
Date	Price ( ₹ Net per 50 kg bag )	Percent increase
March ( Average )	961	
12th April	1006	4.68
6th July	1086	7.95
11th July	1142	5.15
22nd July	1233	7.97
6th August	1278	3.65
Overall increase in 6 months		32.99

Table 6 Poultry feed price changes ( March –August 2012 )

The industry relationship is mostly congenial with the regulatory authorities, except there is ‘rent seeking’ at border gates. Most of the prominent stakeholders consulted during the study are aware of risky practices and the need to maintain bio-security at all stages. According to them the economic constraints at various stages of the business e.g. poor margins, lack of collective leadership and technical guidance are the prime reason for poor implementation of bio-security norms.

## The live bird (Broiler) value chain diagram for Jalpaiguri taking Falakata and adjoining area as hub:

### Core Commercial Sector:



Flow of trade related communication

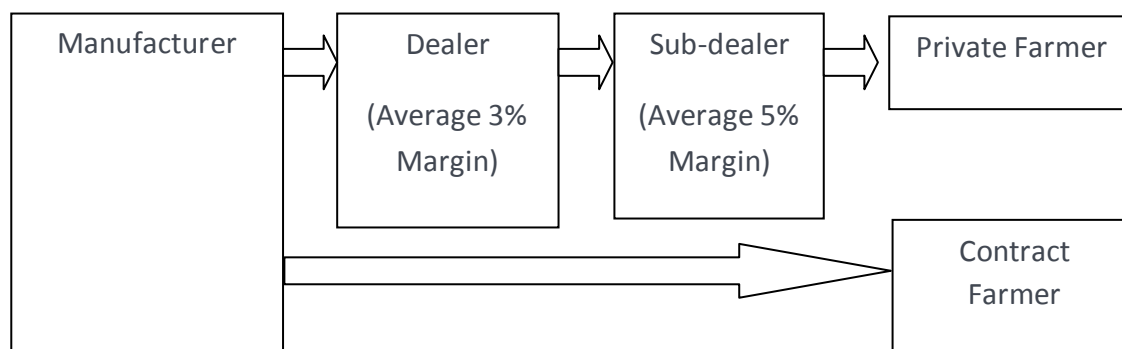
Flow of Farm Inputs

Flow of Product (Live Bird)

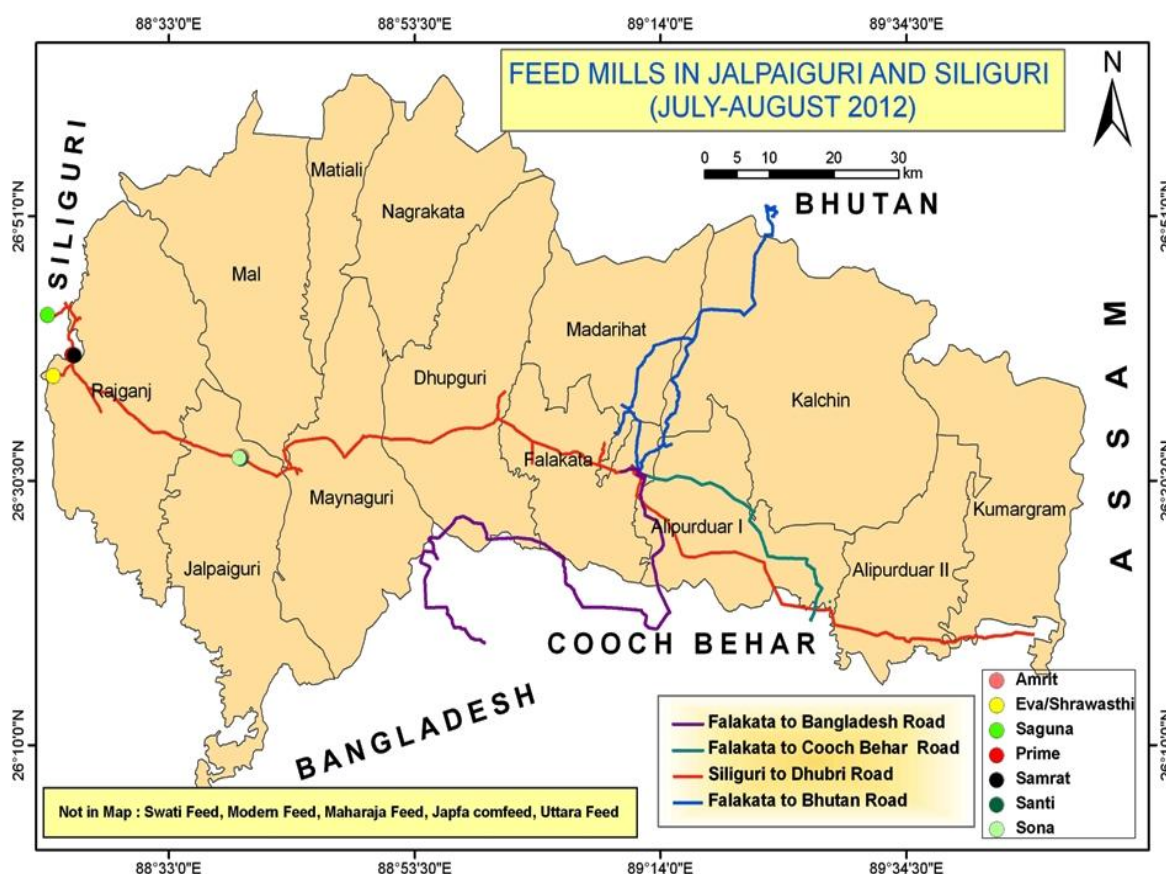
- Usually dealers or representative of contract growing companies themselves act as wholesalers
- Estimated Total Wet Chicken Retail points (A+B): 186
- Estimated (maximum) direct cost of production (with family labour) of 1kg live chicken (July 2012) is ₹70/- (\$1.27)
- Estimated figures based on sample study comprising 109 farms and considering farm sizes and total 0.146 m DOC placement per month by all private dealers and companies.

## Supporting Sector

### Feed



Average Retail Price of Feed (July'2012): ₹28 (\$0.51) per kg.



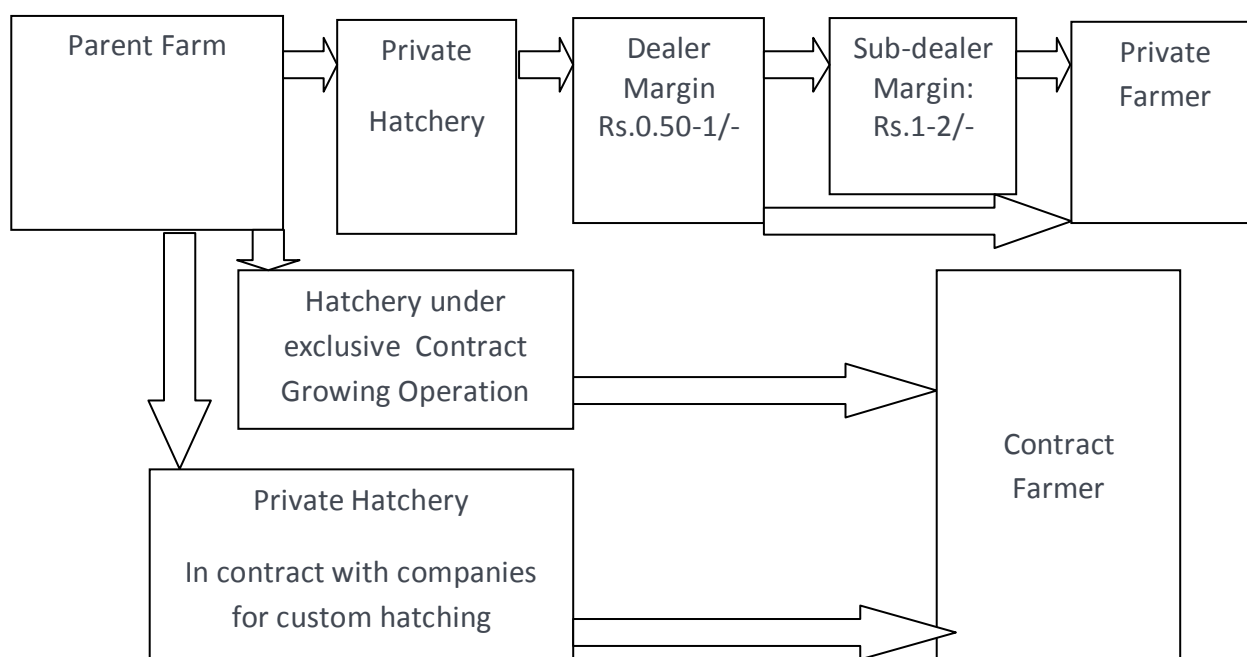
Note: Map is showing GPS location of 7 feed mills out of total 12. Two feed mills Prime (Red) and Samrat (Black) are located within the same place. Similarly three feed mills viz Sona (Light blue), Amrit (Pink) and Santi (Green) are located within the same place.

**Map 8 Location of some feed mills in Jalpaiguri and Siliguri**

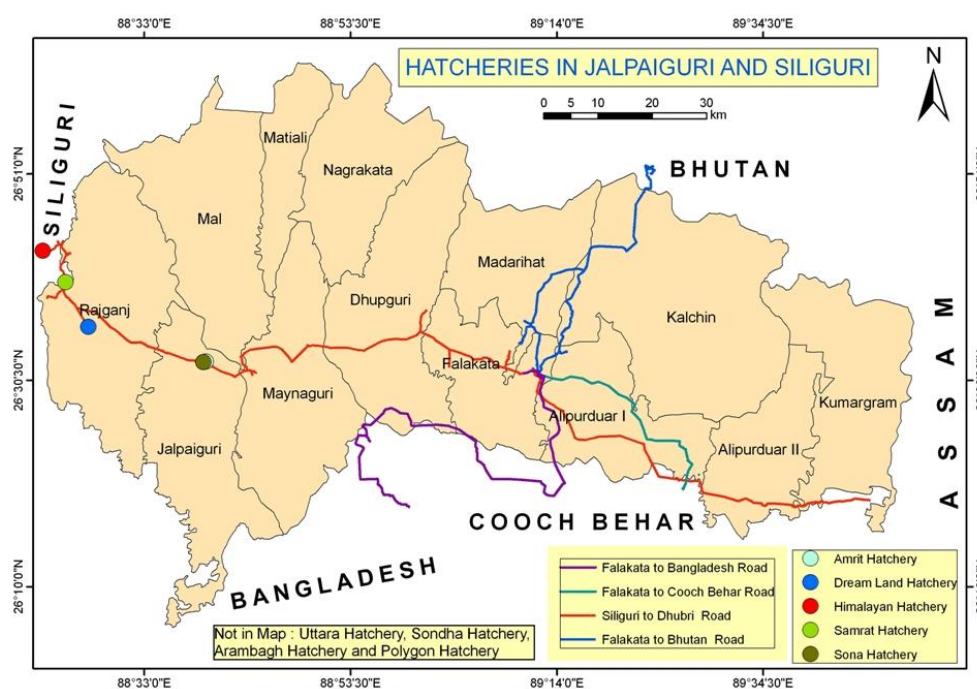
\*Total Estimated feed production capacity per month from 12 Feed Mills =46000 MT valued **₹12.8 m** (\$ 0.233 m) at retail price of **₹28** (\$ 0.51) per kg

Date: 30th September 2012

## Day Old Chick



Average Retail Price of Day Old Chick (July'2012): ₹20 (\$ 0.36) per DOC.



Note: Map is showing GPS location of 5 hatcheries out of total 9. Two hatcheries Amrit and Sona are located within the same place.

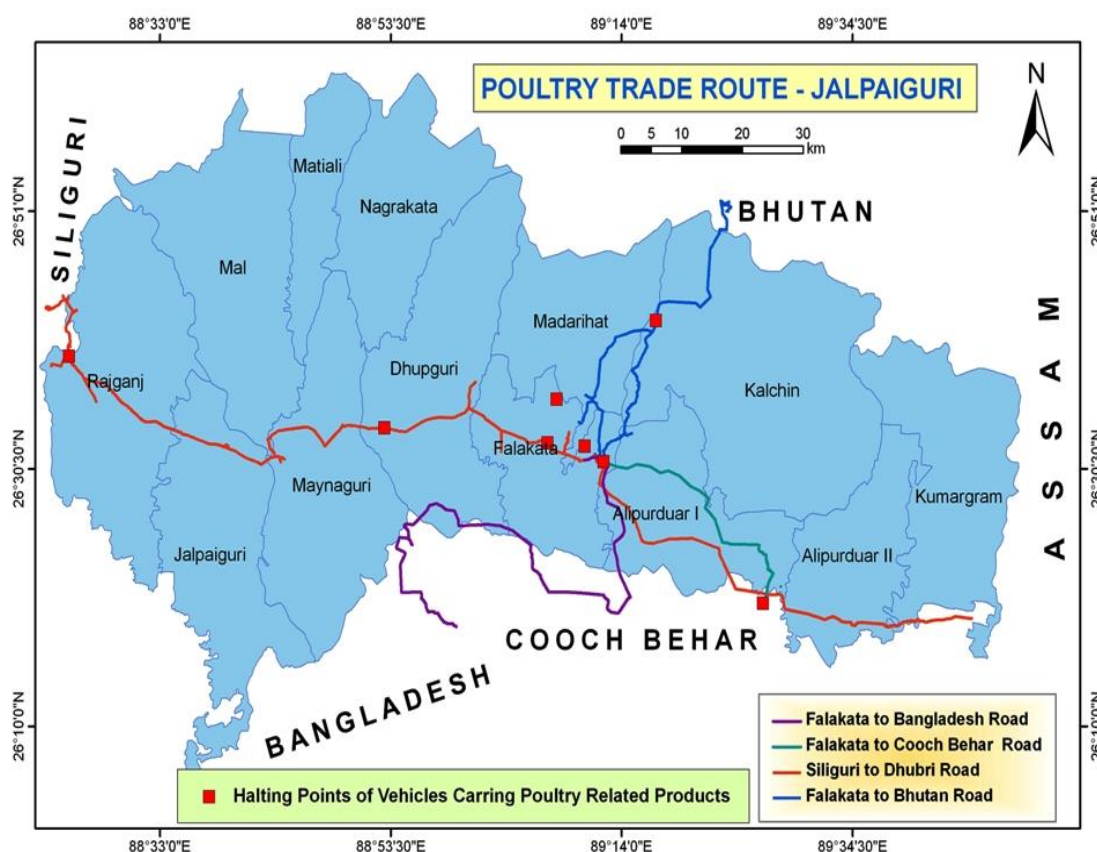
### Map 9 Location of some hatcheries in Jalpaguri and Siliguri

\*Total Estimated DOC production per month from 9 Hatcheries = 0.1120 m valued ₹22.4m (\$0.407 m)

### Trade route and movements of live bird / poultry inputs:

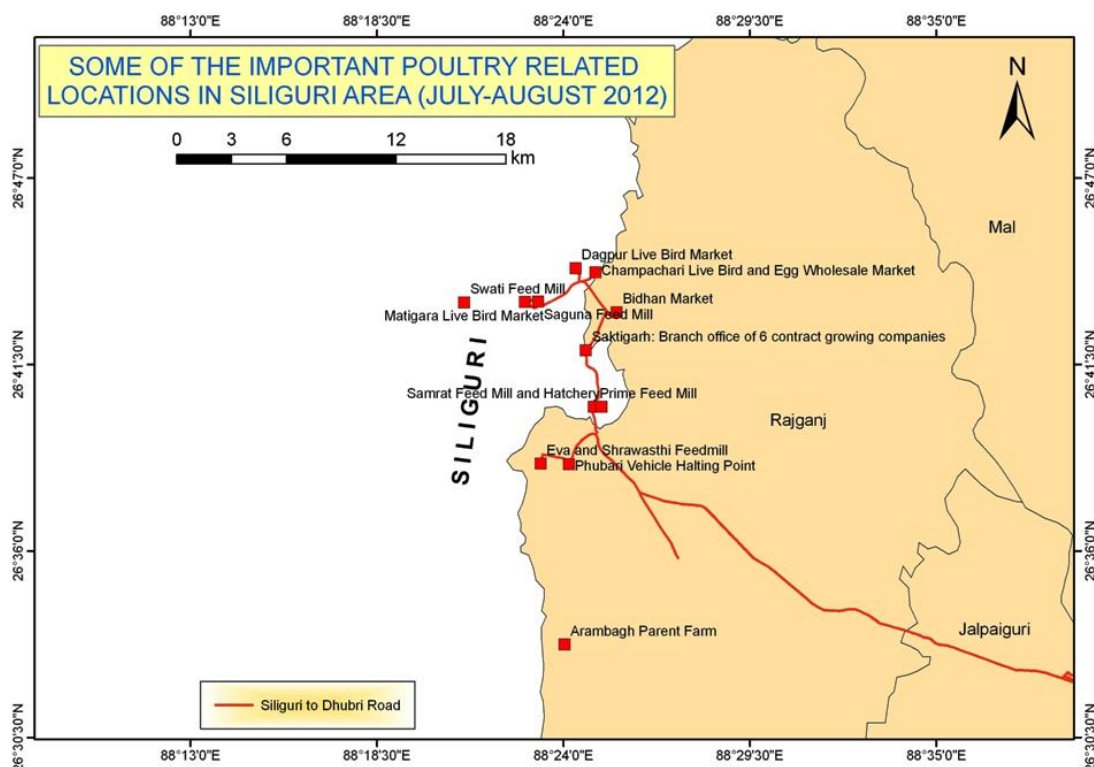
The study recorded movement (GPS track) of loaded vehicles through the main identified trade route from Siliguri to Dhubri inter-state gate via Jalpaiguri district. An additional GPS track was also recorded from Falakata to Bhutan border. GPS attributes such as landmarks, vehicle halting points, Stock holding points and wild bird sighting ( if any ) etc. were also recorded. The map 10 below shows 5 vehicle halting points within Jalpaiguri and three stock holding points near Falakata. These locations can be considered as important in the context of HPAI control.

GPS tracking of poultry related infrastructure in Siliguri area (refer Map 11) highlighted the fact that the city is the hub of poultry related activities in eastern India. Most of the prominent feed mill and ready live birds markets are located within the city. ‘Shaktigarh’ – a locality within the city is known for branch offices of 6 contract growing companies.



Map 10 Trade route of poultry product movement from Siliguri to Assam border through Falakata





**Map 11 Siliguri as hub of poultry related infrastructure in eastern India**

### Estimation of trade:

Quantitative estimation of trade in terms of rupee value at the level of farm, private dealer or contract growing company could not be calculated owing to inadequate data.

The total production from 9 hatcheries is estimated at 0.112 m DOC per month. Considering retail price of ₹20 per DOC, the estimated market value can be calculated at ₹22.4m (\$0.407 m)

The total placement of DOC per month within Jalpaiguri district was estimated at 0.146 m per month. Considering 0.112 m DOC production per month by local hatcheries (including hatcheries in Siliguri), 0.034 m DOC are imported per month to Jalpaiguri district (including Siliguri area) from Kolkata and other places to meet the demand.

The total estimated feed production from 12 feed mills is 46000 MT per month. Considering retail price of ₹28 (\$0.51) per kg of feed, the value can be estimated at rupees 12.8million (\$ 0.233 m) per month.

It is to be noted that there is a marked variation in trade during the year based on seasons. The peak and slack periods are December-January and May-July respectively. This is mostly due to the favourable production climate, festivals and religious belief e.g. the practice of taking strictly vegetarian food by Hindus during the rainy months of June-July (Month of *Shravan*).



## **DHUBRI:**

There are two distinct sub systems in live bird value chain within Dhubri.

- A. System of free-range birds (backyard production from local / improved fowl)
- B. System of linked to commercial broiler birds.

### **Stakeholders:**

In Dhubri district, it is a common practice to farm free-range local birds and ducks in almost every household of the village area. In recent years there has also been growth of a few farms rearing coloured free range birds called Kuroiler marketed by a private company branch, set up in Siliguri. The stakeholders of this system linked to free-range birds are village households with birds; self help groups, NGOs, trader aggregators, retailers and consumers.

Numbers of commercial broiler farms are negligible. About 90% of broiler ‘ready bird’ for Dhubri market comes from north Bengal. The study recorded only a few commercial broiler farms in the Halakura area of Agomoni block. This area is very close to the interstate border area with West Bengal and receives most of the farm inputs from West Bengal.

In the commercial sub system the stakeholders, other than few farmers as mentioned above, can be grouped as ready bird traders, transporters, agents at border gates, retailers and consumers.

An interesting observation in the context of HPAI is the inter-linkage of the subsystems, where villagers / or aggregators are bringing local / colour birds (Kuroiler) to commercial ready bird dealer, and in return taking commercial broiler birds for sale in village areas or for home consumption.

### **Vertical and horizontal networks:**

The district has no functional infrastructure related to support sectors e.g. feed mill / hatchery etc.

### **Product Movement: Commercial live bird:**

About 90% of total ready bird requirement of Dhubri district comes from commercial farms in north Bengal. The formal point of entry of vehicles is Boxirhat interstate gate. There are two other routes viz. Nangolgram and Boterhat where there are no formal check-gates. Reports indicated that movement through these routes is common during interstate trade restrictions. From the gate, vehicles carrying ready bird move through Halakura, Agomoni and Chourangimore (Gauripur). The study recorded four prominent live bird stock points at Chourangimore, Dhubri, Bilasipara and Chapor area (refer map 20). A ready bird dealer maintains these stock points (mostly makeshift arrangements) to hold live birds for one or two days before they are sold to retailers or consumers.

Live birds from these stock points also go to interior areas of Salmara, Hatsingmari, Lakhipur and various *char* (reverine) areas within the Dhubri district. Movement of live birds of all kinds (commercial broilers, local, coloured free-range birds and ducks) by passenger boat is a common practice.

Dhubri is also the transit route for live birds that are traded to destination places mostly the lower Assam districts and Garo hills area of Meghalaya.

### **The Chain Governance in commercial live bird Sector:**

The commercial ready bird traders control the poultry business in Dhubri. There is negligible local production of broiler birds and the price of ready birds in Dhubri and nearby districts of Assam is always higher than in north Bengal. Therefore the traders in Dhubri set the price depending on the north Bengal market keeping a fixed per bird margin of Rs.7/-. They have either their own or hired transport and maintain relationships with a wide network of link men and agents (including agents at the interstate gate). The trade of live birds has its own commercial risk profile. The transactions are mostly in cash. ‘Rent seeking<sup>16</sup>’ is common and there are losses due to theft and death of birds. The majority of ready bird dealers do not perceive disease as a risk as the contact period for a batch of imported live birds is limited. The feeling of being in a temporary trade prevents the traders from investing in infrastructure.

A ready bird trader in Dhubri often keeps his own retail outlets at various places by engaging daily wage workers. This is primarily to maintain control of market prices.

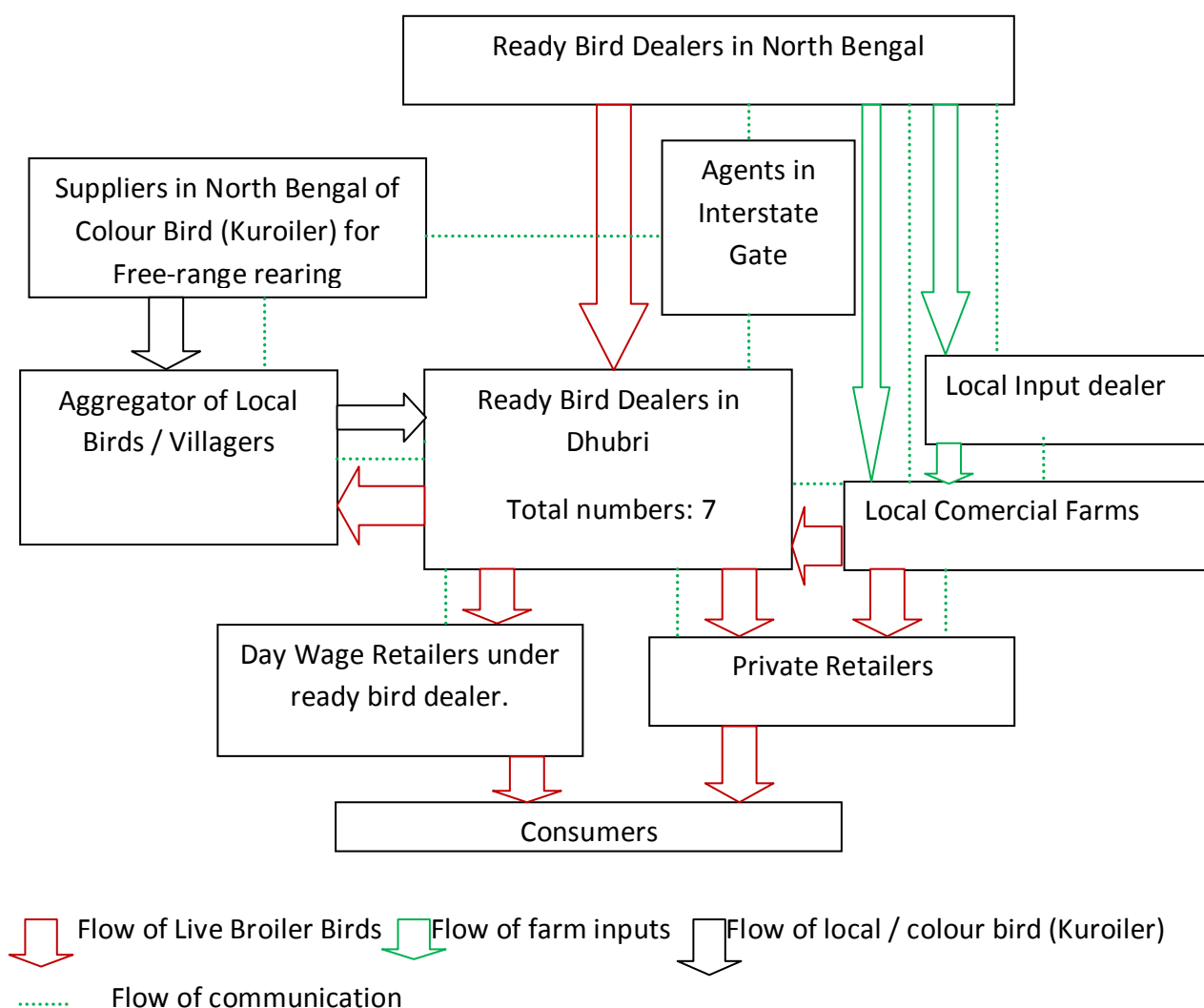
### **Trade estimation:**

Based on data collected from key informants, it can be assumed that 8-10 trucks (each carrying 1600 -1700 kg, average bird weight 1.8 kg) of ready birds enter Assam exclusively for Dhubri Market.

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<sup>16</sup> An attempt to obtain economic rent by manipulating the social or political environment in which economic activities occur, rather than by creating new wealth.

**Live Bird Value chain diagram for Dhubri:**



### **Few observed Risky Practices within value chain and Economic drivers:**

A number of risky practices in the context of HPAI in poultry were recorded from both the study locations. They are listed below:

#### **Practice 1:**

##### ***Setting up of ready bird (broiler) stocking points in makeshift houses in populated residential areas***

- Unhygienic condition of stocking areas
- High density stockings
- Mixing of local and commercial broilers
- Poor and questionable (Sale for food!) disposal practices for dead birds

Location: Dhubri

Value Chain Players: Ready bird (commercial) stockist, dealer / wholesaler

Drivers: Close to market, temporary and risky nature of the trading business, limiting incentive for investment on proper infrastructure.



**Picture 11 Live birds being stocked in makeshift houses in Dhubri, (box shows dead birds)**

#### **Practice 2:**

##### ***Improper use and disposal of litter materials***

- Re-use of sub dried litter
- Piling up of used litter near farm sheds for long periods

Date: 30th September 2012

Location: Jalpaiguri

Value Chain Players: Commercial poultry farmer

Drivers: High price of used litter during agricultural seasons (Used mostly in potato cultivation.

Occasional supply constraints leading to re-use.



Picture 12 Risky practices related to used litter material including re-use after sun drying on poultry farms

**Practice 3:**

***Unplanned construction of poultry houses***

- Housing in low laying areas
- Inadequate orientation and distances between houses

Location: Jalpaiguri

Value Chain Players: Commercial poultry farmer

Drivers: Better use of available land





Picture 13 Unhygienic makeshift poultry house in low lying areas in Falakata

**Practice 4:**

***Inadequate movement restriction to the farm premises***

- Uncontrolled movement of people
- Limited arrangement for footbath with disinfectants
- Movement of ready bird carrying outside vehicle near farm.

Location: Jalpaiguri

Value Chain Players: Commercial poultry farmer, ready bird dealers and company workers responsible for lifting of birds.

Drivers: Convenience and cost of loading in distant places.





Picture 14 Live bird carrying vehicle being loaded near farm

**Practice 5:**

**Poor market management**

- Wet chicken retailing in unmarked areas of local markets
- Mixing of local and commercial bird at the sale / stock point

Location: Jalpaiguri

Value Chain Players: Chicken retailer / market regulator

Drivers: Convenience, non availability of earmarked facilities or high rent / competition for space in earmarked areas of wet chicken retailing.



Picture 15 Unhygienic wet chicken retailing in unmarked areas of local market



Picture 16 Mixing of local chicken, duck and commercial poultry in local markets

**Practice 6:**

**Poor bio-security practices of hatcheries**

- Improper disposal of waste

Location: Jalpaiguri

Value Chain Players: Hatchery operators

Drivers: Poor law enforcement and inadequate facility for disposal.



Picture 17 Improper disposal of hatchery waste along side the boundary wall of a hatchery.

**Practice 7:**

**Poor bio-security during transport**

- Unhygienic transportation
- High stocking density during transportation



- Unrestricted movement of loaded vehicles in populated areas
- Multiple loading and unloading
- Multiple uses of vehicles meant for poultry transport.
- Transport of live bird through common transport system

Location: Jalpaiguri / Dhubri

Value Chain Players: Ready bird dealer / transporters

Drivers: High profit with large number of birds (Ignoring risk of death of birds), cost saving, chance use of vehicle in other trade, poor law enforcement, logistic convenience in multiple loading and unloading.



Picture 18 Unhygienic and high density transport of live birds



Picture 19 Transport of live poultry by passenger boat in Dhubri

## Description of Table Egg value chain:

### Sub Systems:

There are two distinct sub systems in egg value chain within the study areas.

- C. System linked to local eggs (backyard production from local / improved local fowl and ducks )
- D. System linked to commercial table eggs ( commercial production from layer birds )

### Stakeholders:

Stakeholders for local egg sub systems include rural households, self help groups, non government organizations, trader aggregators, retailers and consumers.

In Jalpaiguri, Government is implementing a major program to promote improved birds for free-range rearing. The project hopes to create a high value, sustainable, market-linked value chain targeting niche urban segments. The success of the endeavour is likely to provide incentive for farmers to engage in rearing of backyard local birds following prescribed management practices. A number of field communicators, service providers, facilitating development agencies (e.g. *Panchayats*) are being engaged under the program in three blocks of Jalpaiguri district for this purpose.

The study also recorded a private sector endeavour to promote coloured, dual-purpose birds meant for free-range rearing. Backyard free-range farms with these birds were available in both the study areas. The private company engaged in this activity at national level maintains a 30000 weekly production capacity hatchery and some mother (brooding unit) farms at Jamalda and Maynaguri areas of Jalpaiguri. The stakeholders under this private arrangement include, company officials, dealers, mother (brooding unit) farm owners, farmers (rural households) and independent trader aggregators. The existence of another category of stakeholder, *Pheriwalas* (one who sells pullets for rearing to interested rural households door to door), was indicated by the company in other areas of the country -this could not be identified within the study areas.

There are no commercial layer farms within Dhubri and Jalpaiguri districts. Commercial table eggs are supplied to both districts from various states of southern India (mainly Andhra Pradesh). Bus Stand, near Raja Bari, Coochbehar town (the headquarters of the neighbouring Coochbehar district of West Bengal) acts as a major egg trade hub. The study recorded six prominent dealers at the same location. The traders maintain their own infrastructures e.g. offices, transport vehicles etc. and employ people at different levels to manage the day-to-day operations. No proper estimation could be made of the total number of people engaged directly or indirectly with the egg trade activity. The stakeholders in commercial table egg value chain can be listed as super dealers and / or

commissioned agents (at the point of origin), dealers, sub dealers and / or wholesalers, retailers and consumers.

### **Vertical and horizontal networks:**

Government initiatives are being made in Jalpaiguri to supply feed to areas where free-range rearing of improved birds is being promoted.

Packaging materials for egg transport come from other parts of India.

Since negligible commercial production activity takes place within the study locations, it can be assumed that there are limited separate supporting networks for the supply of specific inputs e.g. layer feed.

### **Product Movement: Commercial Table Egg:**

The egg trade hub of Coochbehar (refer Map 12) is responsible for supply to destinations in the whole of north Bengal and the states of north east India. The eggs are transported by trucks and passenger buses from Coochbehar to Assam and other north eastern states. The eggs from Coochbehar regularly enter Siliguri (refer Map 13 for trade route). The study could not confirm any international trade in eggs with Bhutan or Bangladesh. Bhutan has its own limited small scale and commercial layer farms in the Tsirang area. It is to be noted that because of INR rationing, exchange of Bhutanese currency Nyugen (Nu) to Indian currency of Rupee is no longer easy and this is hampering poultry and related trade between India and Bhutan. As far as Bangladesh is concerned the country has only recently permitted fixed period import from non-HPAI countries. Informal reports indicate that Bangladesh is looking for suppliers of table eggs in Thailand rather than India.

### **The Chain Governance in Commercial Sector:**

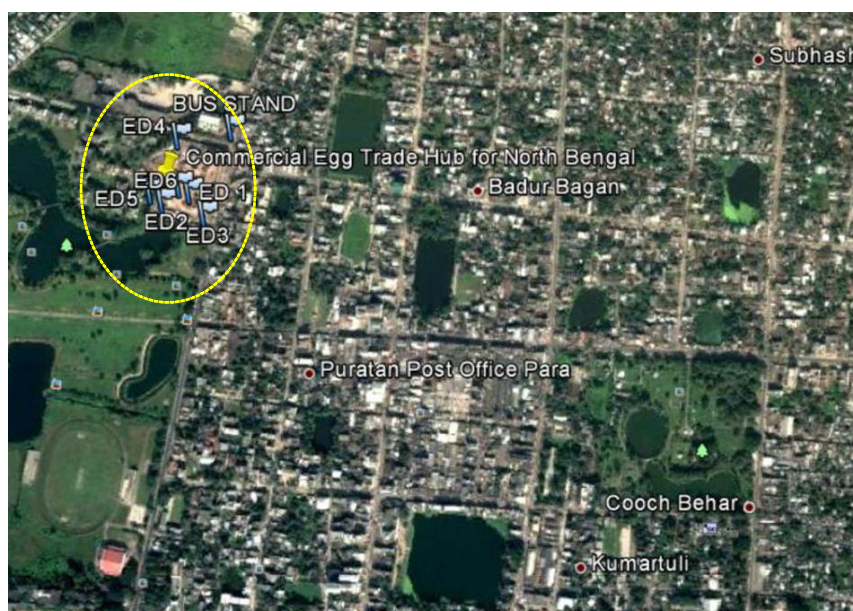
Egg trading is a low margin - high volume trade. The trade has its own inherent business risk including short product shelf life and seasonal variations in demand. The interviewed traders informed the study that eggs from southern states need to be sold to the consumers (including to the interior of the north eastern states) within a maximum of 20 days as they are not transported in temperature controlled vehicles. The trade demands skilled involvement on the part of the traders to ensure the just in time supply system (to the greatest extent possible) as high stock levels are not only costly but also can be damage product quality. Cold storage facilities in Coochbehar are only occasionally used by egg traders. June and July months of the year are the periods of low demand owing to the auspicious Hindu month of Shravan (Month of rain and Lord Shiva) when it is forbidden to take non-vegetarian food. It is to be noted that commercial table eggs are perceived to be non-vegetarian in most parts of India. Being the production hub any disturbances in southern states such as Andhra Pradesh will affect the trade. Transporting the consignments via road is a risky proposition; it was learned that insurance is available only

up to Coochbehar. The long and high transportation risk is a prime reason for high trader margins in the states of north east India.

Some of the traders in Coochbehar maintain their own staff in southern states to closely observe market trend and declared egg price<sup>17</sup>. This helps the traders decide on reasonable supply sources. The interviewed traders claimed that loyalty to a particular super dealer in southern states is not mandatory and the business is highly dynamic and mostly transacted in cash. The dealers in Siliguri and Guwahati usually place orders directly with their contacts in the southern states. The highly skilled and informal nature of the trade, investment required and inherent risk is a strong entry barrier for new entrepreneurs.

An interesting observation with implication linked to ensuring product traceability, is the practice of printing the name of the trader along with the name of the concerned super dealer in the southern state (point of origin) with contact details on the transport egg carton. The printing of the name of the trader on such cartons takes place at the point of origin itself. Few traders in Coochbehar informed that they were being forced not to mention their name on the egg carton owing to threats from extremists in north eastern states who demand money occasionally using the printed contact details.

In assessing the impact of the recent HPAI outbreak, the interviewed traders indicated that, table eggs were not linked to HPAI spread. The traders do not perceive any risk linked to HPAI. The consumer demand in north Bengal and north eastern states remains constant during outbreaks. They have indicated that there is export linked fall of egg prices in southern states with declaration of HPAI outbreak and this is beneficial to them.



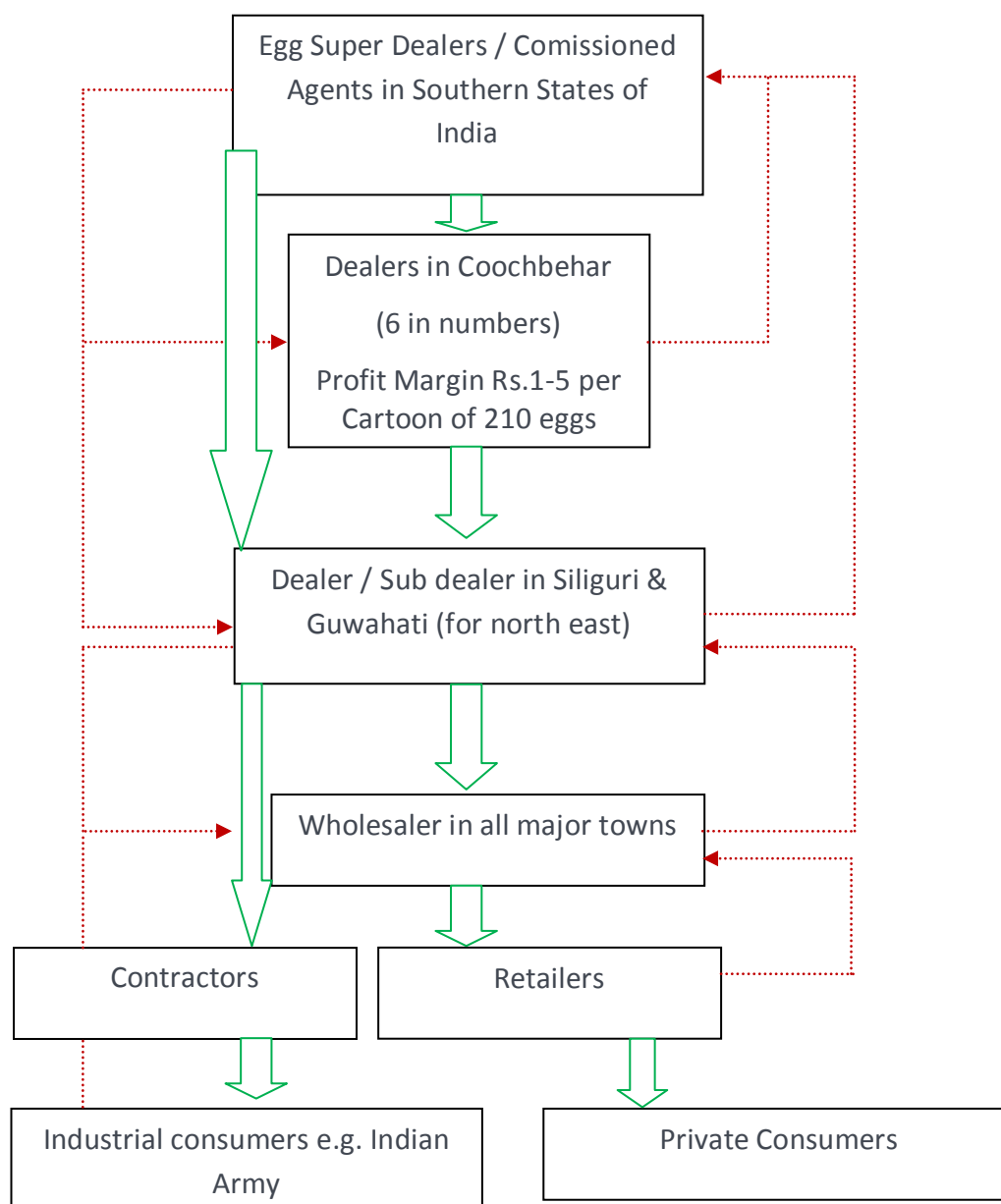
**Map 12 Commercial egg trade hub of north Bengal**


<sup>17</sup> By National Egg Coordination Committee ( A Industry association )



## The Table Egg value chain diagram for the study area:

### Commercial Sector:

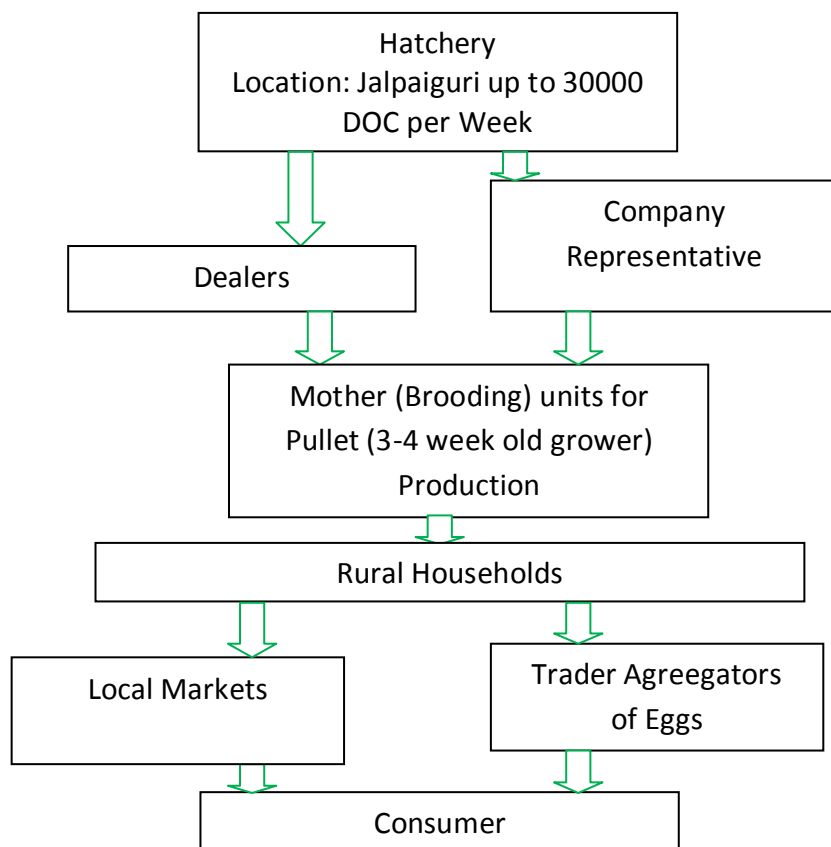


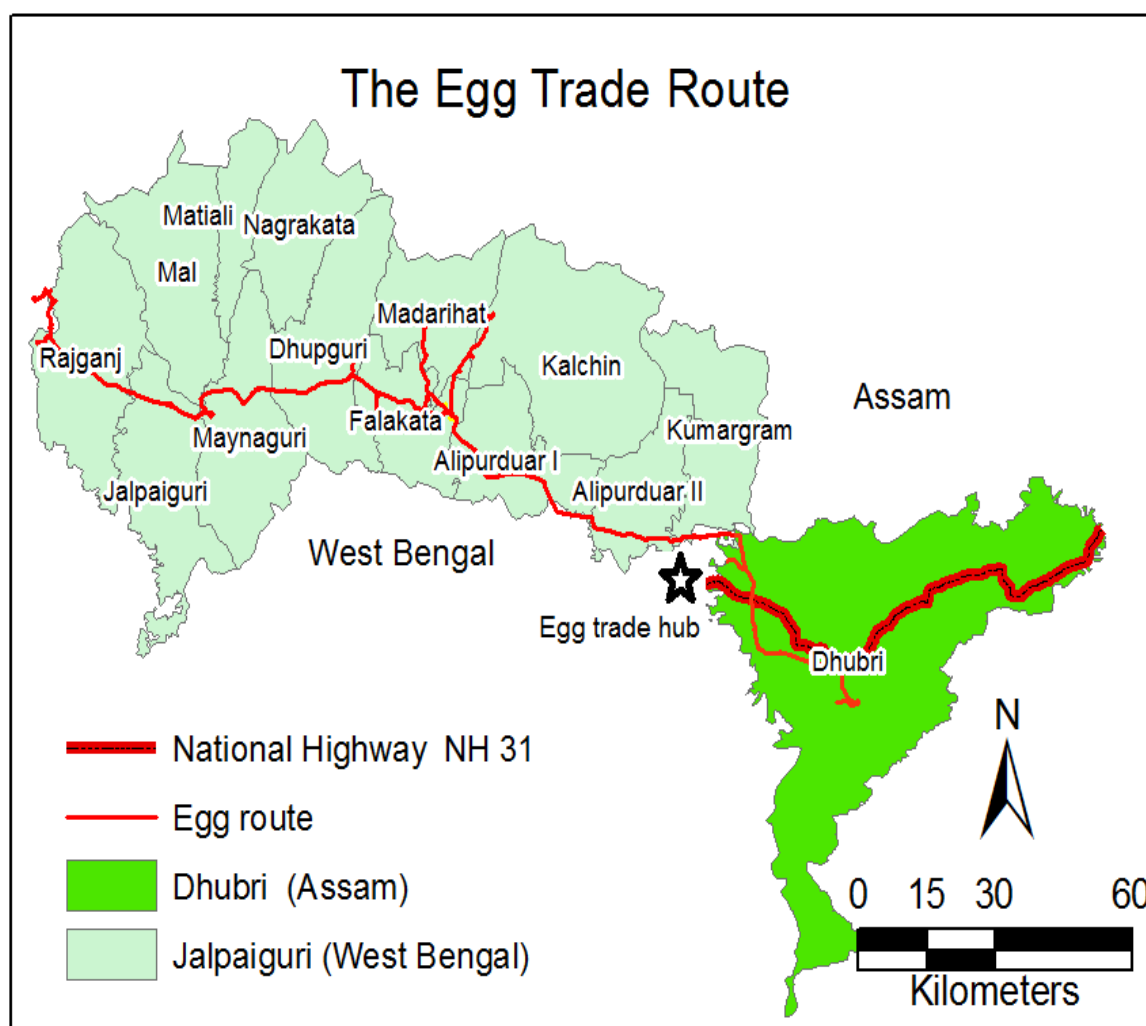

 Flow of trade related communication  
 Flow of goods (Maximum transit period from point of origin to consumption: 20 days)

- Estimated volume of trade ( north Bengal and north east India : 121 trucks per month or 32.73 million eggs (one truck carries 1288 carton of 210 eggs each)
- Price at Coochbehar (3<sup>rd</sup> Aug'2012): ₹620 (\$11.27) per cartoon (or Rs.2.90 per egg) inclusive of Transportation+Insurance of consignment +cost of printing of trader name in cartoon.
- Wholesale price at Guwahati market (3rd Aug'12): ₹640 (\$11.64) per carton.
- Consumer Price at Guwahati market (3rd Aug'12): ₹860 (\$15.64) per egg.

### Value chain diagram of Free-range Sector:

The value of chain of private sector supported free-range backyard farming of dual purpose (egg and meat) birds (Kuroiler) can be shown in following flow diagram.





**Map 13 Commercial table egg trade route**

Point of origin of table Egg: Andhra Pradesh (not shown in the map)

Destination: North Bengal region of India and north east India

Hub of trade activity: Bus stand, Coochbehar (Near Rajabari)

### Quantitative estimation of trade in commercial sector:

Collation of field data indicates that on average 121 trucks with 1288 egg cartoon each enter Coochbehar from southern states of India every month. Considering 210 eggs per cartoon the total number of eggs (meant for consumption of north Bengal and north east India) can be calculated at ₹32.73 million (\$ 0.6m.)

Considering Rs.3 per cartoon as average margin, the trade hub at Coochbehar transacts around ₹4.7 million (\$ 0.085 m) in a month.

### Observed risky practices and egg value chain players:

#### **Practice:**

#### **Disposal of broken egg**

- Stocking (for human consumption!)

Location: Coochbehar

Value Chain Players: Egg dealers

Drivers: Unconfirmed demand from low end bakery / shampoo manufacturing unit.



Picture 20 Broken table eggs at dealers place

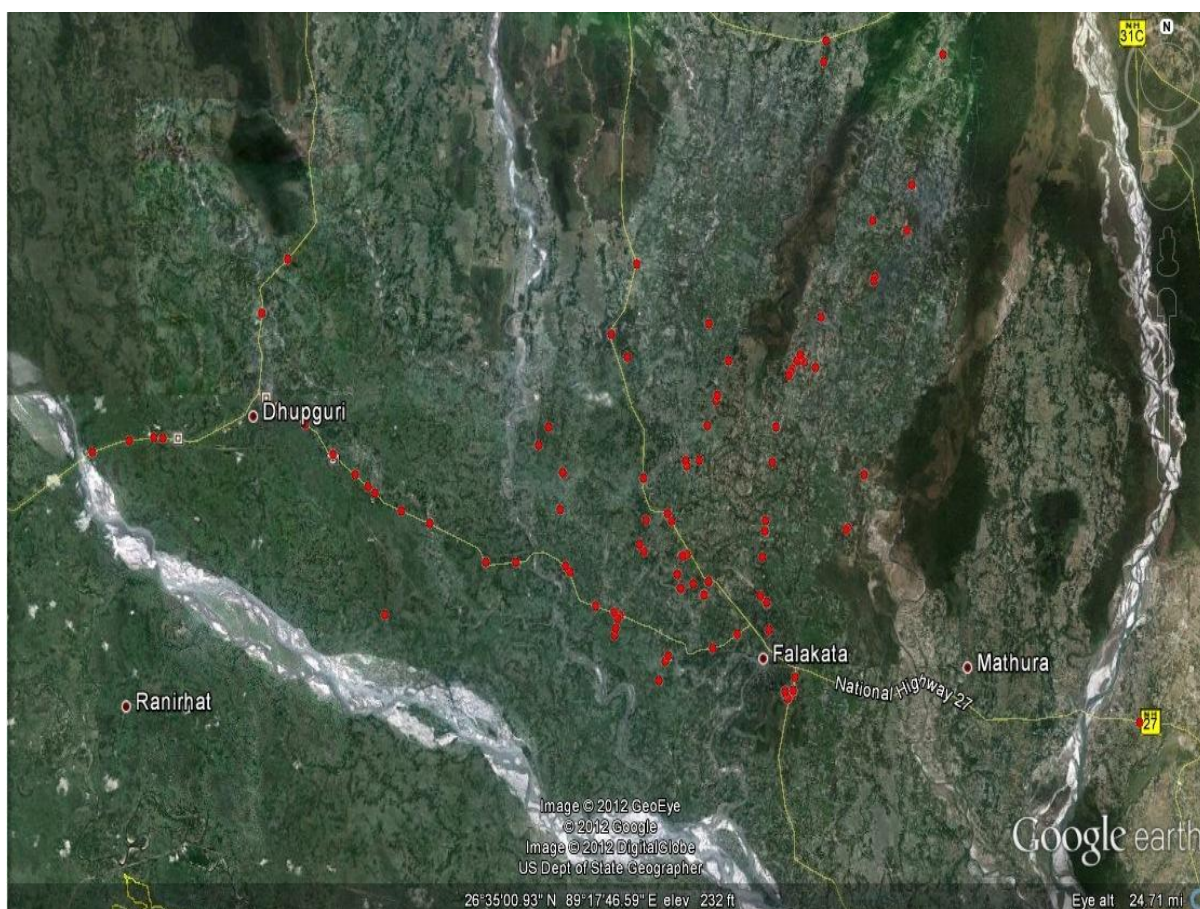
## Value chain players and HPAI Control Point:

### The Case of Falakata:

#### Findings of sample survey in Falakata and adjoining area:

The sample study covered select areas of the Falakata administrative block and adjoining areas such as Dhupguri, Madarihat-Birpara and Maunaguri.

The sample size comprised of 109 farms (For which GPS points were recorded, see map 14 for spread of sample farms) indicated number of private farm and farms under contract arrangement at 58 % and 42% respectively.



**Map 14 Spread of sample farms in Falakata and adjoining areas**

It is notable that in terms of placement of day old chick, contract growing or integrated companies place more birds (approximately 78 % of total placement). As per sector definition by FAO all sample farms can be placed under Sector-3 farm<sup>18</sup>. According to farm size 34% farms are within the category A i.e. less than 1000 birds. Farm under category B i.e. size 1000-3000 is highest with 52%, whereas category C farms i.e. above 3000 is 15% (refer figure 3). An interesting observation is that 78% of farms under category A i.e. less than

<sup>18</sup> Commercial poultry production system with low to minimal bio-security where birds/products are entering live bird markets.

Date: 30th September 2012

1000 are growing with private dealers. Most of the small farms visited during the study had poor bio-security arrangements. The small size farms with poor bio-security can be assumed to be more vulnerable to disease outbreaks, private dealers have an important role to play in upscaling these farms and in bringing the needed bio-security awareness and improvements. The finding that 22% of farms in category A are under integration contracts indicates that companies undertaking contract growing operation are not following any fixed norms in terms of farm size. It is to be noted that usually contract growing companies restrict farm sizes for signing of contract. This is because of high logistic cost of supply of inputs or marketing of live chicken vis a vis return in case of small farms.

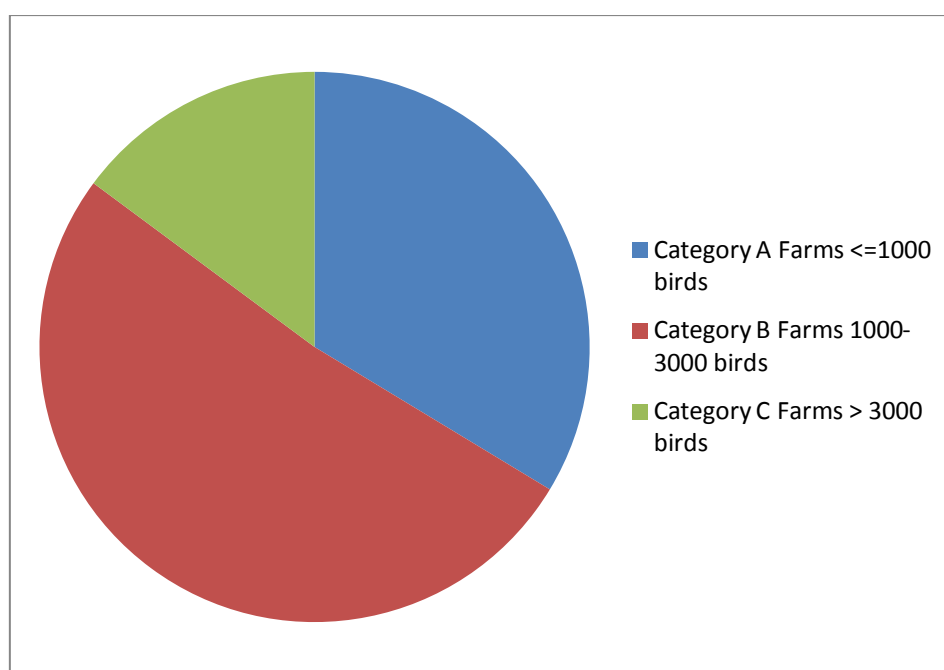
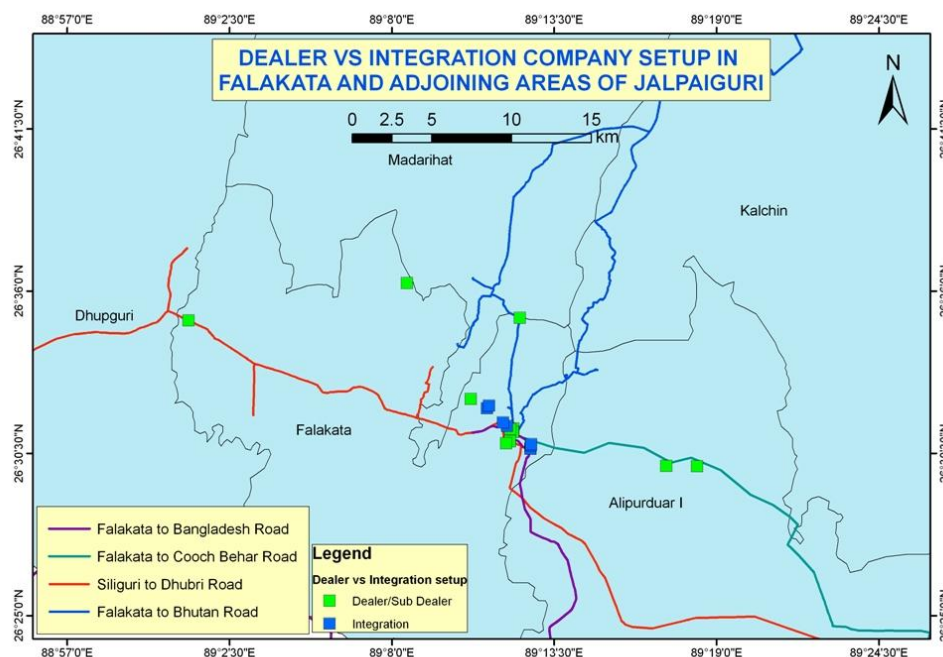


Figure 3 Commercial Farms in terms of number of birds

The increasing number of farms under contract growing operation indicates the trend towards this more organized activity. The study area has branch offices of 7 companies engaged with contract growing operations. The private dealer network of 8 dealers was found to be equally active within Falakata and adjoining areas from where information was taken (see Map 15). This indicates that any intervention for HPAI control within the area needs cooperation from both the companies and private dealers.

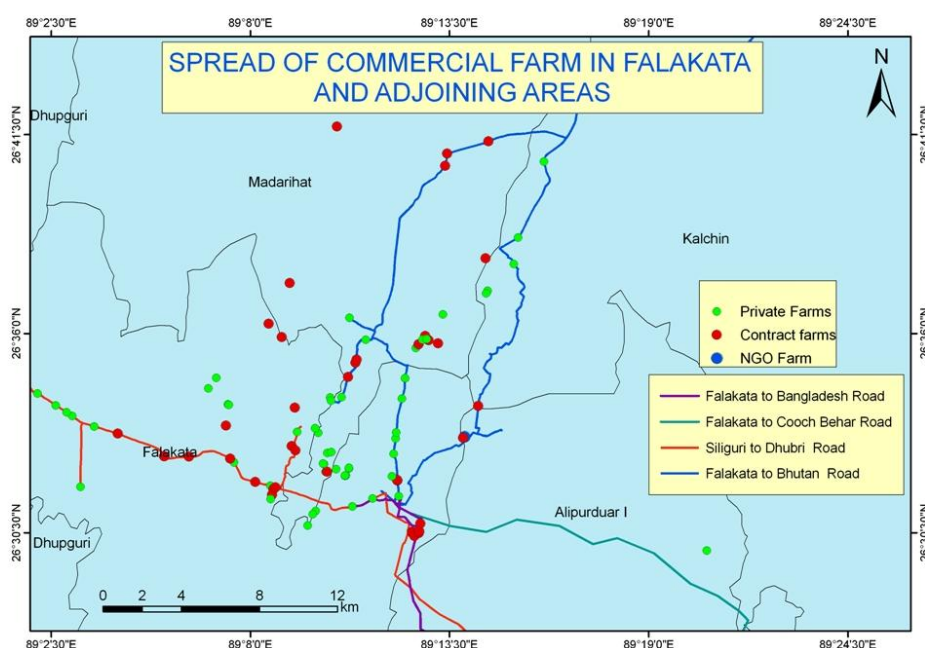




**Map 15 Dealers vs Contract growing company set up in Falakata and adjoining areas of Jalpaiguri**

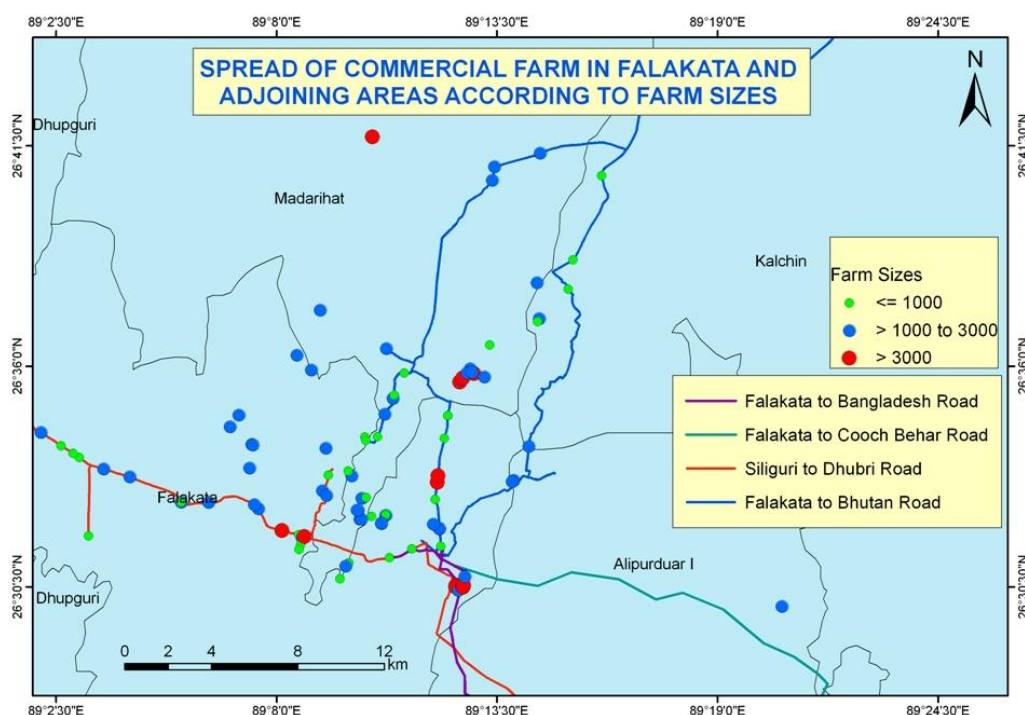
Note: In few cases branch offices of integrated or contract growing companies are located within close vicinity and as such there are only three visible points in the above map for branch offices of integrated companies.

Commercial farm spread as shown in map-16 below indicates that both private and contract farms are found in the same localities.



**Map 16 Commercial Farm growth Private dealers vs Contract farms in Falakata and adjoining areas**

Commercial farms vary in size with most farms in the range of 1000 to 3000 capacity (refer Map 17).



**Map 17 Commercial farm spread in Falakata and adjoining areas (by farm size)**

Many farmers appreciated the fact that improved bio-security can reduce disease and production costs through improved animal health. Discussions to assess the lack of motivation for implementing bio-security indicated the following:

- Low risk perception
- Lack of awareness: What is risky?
- Low investment capacity for proper housing and regular disinfection
- Non availability or high cost of cleaning materials
- Shortage of time for cleaning etc due to multiple chores related to earning a livelihood.

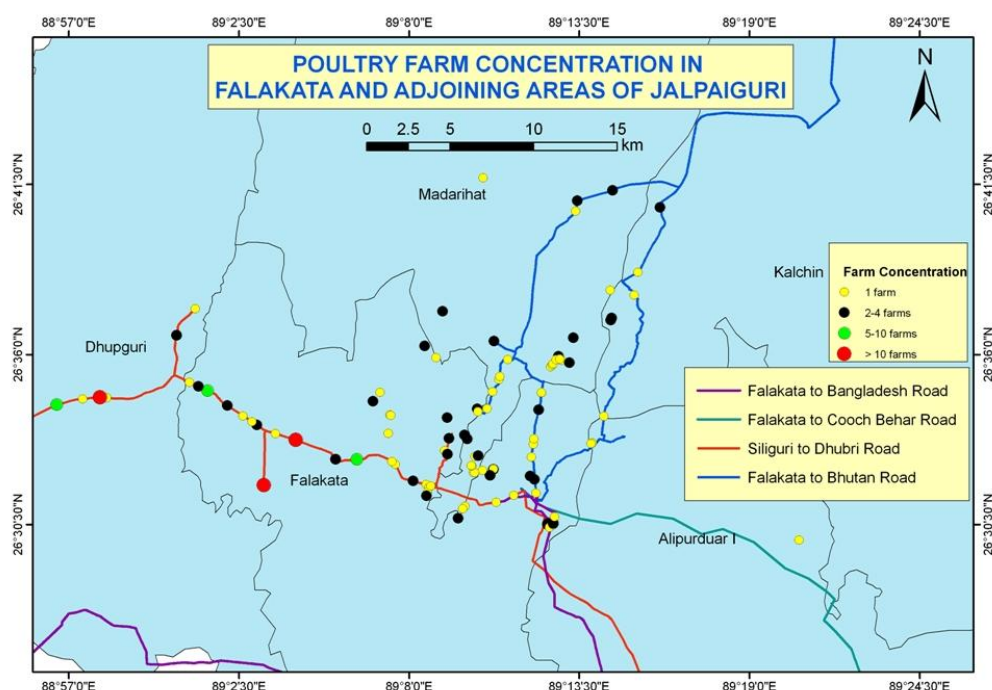
The findings indicate that any effort at collective action by all farms for improved bio-security will only get the required participation if the suggested measures are economical or subsidized for smaller category farms.

In terms of farm concentration, map 18 indicates 3 areas where there are concentrations of farms (note 3 GPS points in red). Out of the 3 concentration areas observed, two areas were of farms of category A i.e. less than 1000. The previous map (Map 16) indicates that these

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Date: 30th September 2012

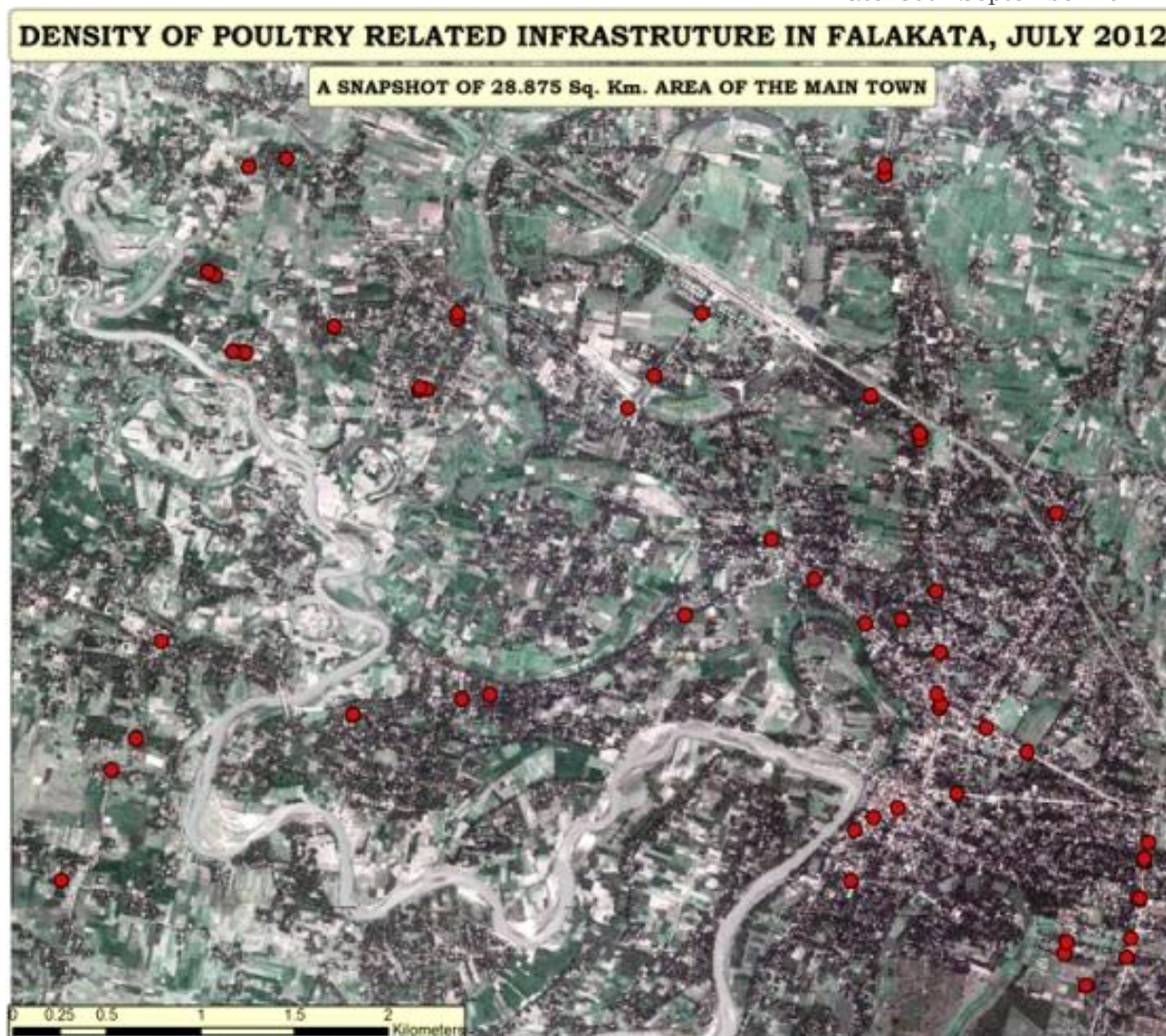
concentration areas are increasing under the promotion of private dealers in two areas and contract growing companies in one area.



**Map 18 Farm concentration**

Falakata town is the hub of commercial poultry operation. High density of infrastructures such as commercial farms, private dealer and company offices, retail points were observed in thickly populated areas during the study. (See Map 19)





**Map 19 Falakata town showing density of poultry related infrastructure**

A detailed study was undertaken to further explore the density of farms in a select area known for the increase in poultry farms. Map 20 below indicates the concentration of 45 farms in a 9 sq km area (5 per sq km). The average distance between adjacent farms calculated using the map tool was found to be 380 meters. It is to be noted that in number of cases more than one farm is located at a single GPS point. The standard norm of distance between two farms is recommended to be at least 1 km and that between two houses of the same farm should be a minimum of 10 meters.





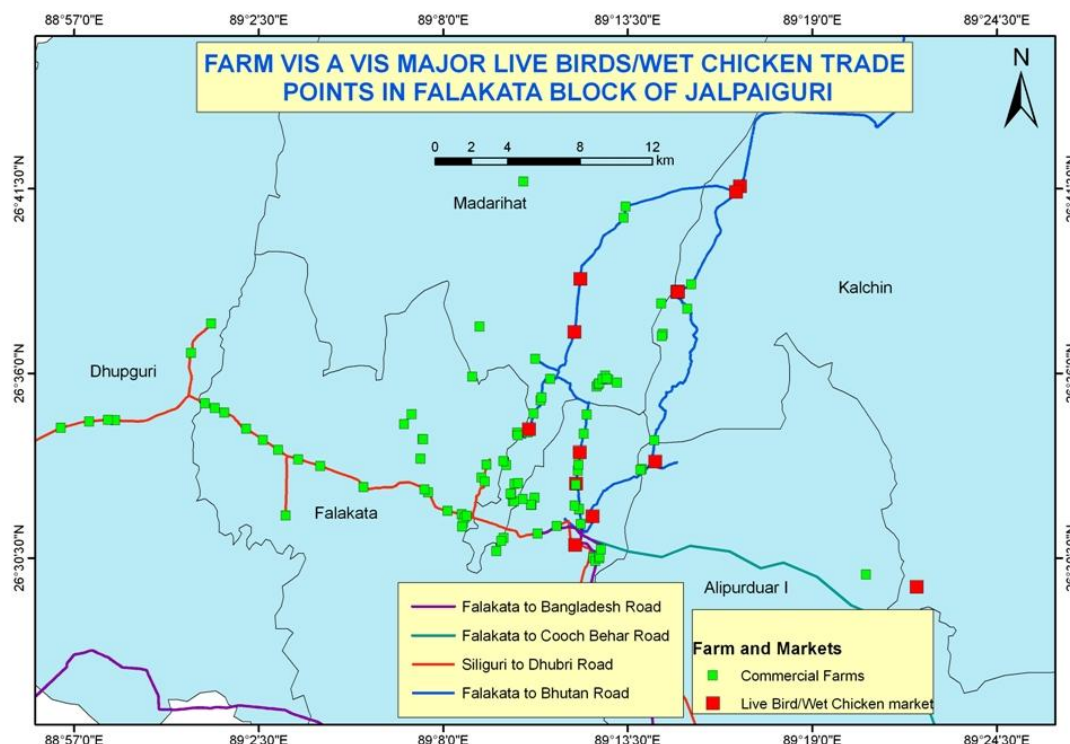
**Map 20 Density of farms in a select area of Falakata, Jalpaiguri district**

Discussions with stakeholders regarding the motivation behind the concentration of farms in a locality indicated the following:

- Close to infrastructure of dealers ( easy access to services of dealers )
- Access to known trade route.
- Socio-economic conditions: Poor farmers with limited land holding in certain localities can only afford small size farms, thus leading to concentration.

These findings indicate the need to discourage the growth of farms in localised areas resulting in large concentrations and to identify suitable areas for planned growth in the future. A critical control point for HPAI prevention should be strong surveillance of these areas in close association with promoters i.e. private dealers and contract growing companies.

Maps 21 show commercial farms vis a vis live bird / wet chicken markets indicating not only the high concentration of live / wet chicken markets but also the number of farms close to markets. This is a high risk proposition.



**Map 21 Spread of live bird market vis a vis commercial farms**

Interviews with stakeholders recorded the motivation for the large number of retail outlets as:

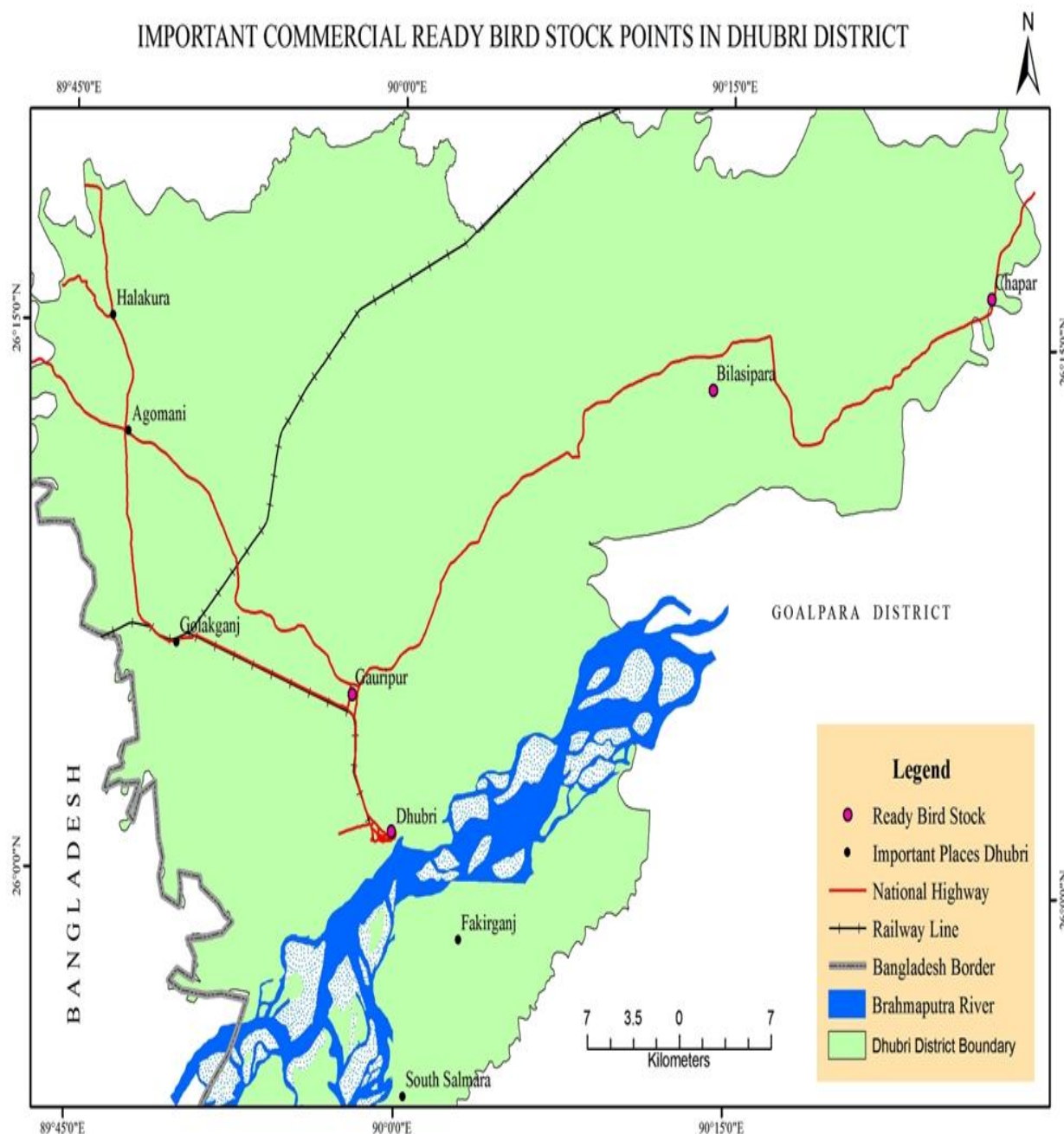
- Low investment requirement to start a retail outlet
- Live birds can be taken from dealers on credit.
- Poor implementation of regulatory and market provisions by municipalities / town committees.
- Possible engagement of wage labor as retailer by live bird dealer.

A critical control point should be effective measures to implement market management and hygiene with the possible relocation of retail outlets to suitable alternative areas. Retailers should be given incentives to set up semi-permanent structures promoting bio-secure and the hygienic retailing of chicken.



### The Case of Dhubri:

The value chain analysis made earlier for Dhubri district indicates a strong role played by ready bird traders who supply almost 90 percent of broiler chicken requirements for the district. The study attempted to identify prime live bird stock points where HPAI awareness program and surveillance can be targeted.



**Map 22 Commercial Ready Live bird stock points in Dhubri**

## **Analysis of value chain constraints with respect to HPAI**

In Jalpaiguri, aggressive market intervention by contract growing companies (78% of total DOC placement) clubbed with rising feed prices ( 33 % increase between March and August 2012 ) has resulted into squeezing of profit margin of private dealers. Private dealers besides managing own farms, many a time invest and act as active partner in the production process of client commercial farms. Private dealers' financial credit to client farms for supplied inputs is largely relationship based and demand driven. It can be argued that, if not by way of direct loss as in the case of a farmer, a private dealer do suffer from disease outbreak due to disruption in supply chain. It is to be noted that private dealers are in business for several years and are trying to innovate and compete with contract growing companies in terms of more close guidance and supervision of client farms. The study indicated that private dealers are finding difficulty to network and bring in the necessary investment for forward and backward integration. Such investments can reduce the cost of production in their client farms and as such low procurement price of finished chicken to compete in the market. Companies who reaps the benefit of low cost of production due to integration and scale of operation, supplies most of the live bird to local and distant markets. It is obvious that the companies mostly decide on the market price of live birds.

The competition in Jalpaiguri, without a level playing field (e.g. in terms of access to knowledge, capital and technology) has resulted in to regular conflict between companies and private dealers. There are ample reasons to argue that such conflict or lack of cooperation is preventing collective industry-led actions to control HPAI. There are however, also limited awareness about possibilities, perceived incentive and absence of acceptable mechanism for collective industry-led actions to control diseases.

The concentrated growth of production cluster which is dependent on only few captive markets makes the commercial farm sector in Jalpaiguri vulnerable to disease and external shock. There are hardly any systems to register commercial operation. The government offices entrusted with monitoring of growth are not in a position to act in absence of dynamic database of registered farms and other poultry related infrastructures. Inadequate planned growth in terms of commercial farms and other infrastructure is one of the other biggest constraints of value chain in Jalpaiguri.

Poor infrastructure to augment possible export to new markets within India and neighbouring countries is limiting the incentive for more organized, bio-secure and capital intensive activity within the clusters in Jalpaiguri. Another constraint as observed in Falakata and adjoining areas is the high numbers of markets in close proximity of farms and inadequate investments on wet chicken retailing.

In Dhubri, highly informal and perceived temporary nature of interstate trade of live chicken is preventing investments on proper transport and stocking facilities on the part of ready bird dealers. While import surges make it tough for local commercial farms to compete, there is no focused supply or demand side intervention to streamline the possible sustainable value chain linked to free-range farming of local chicken and duck including improved varieties promoted by government and private agencies.

## Conclusion and Recommendation:

The study was undertaken during the short period from mid June to early September 2012. The environmental extremes and political disturbances prevented coverage of many areas in both the study locations.

The recorded findings were discussed with the local stakeholders. The consultations helped in listing following suggestions:

### For Jalpaiguri district:

*Institutions building:* The collective action on the part of industry within the study area is only possible if both the key stakeholders i.e. private dealers and contract growing companies join hands to support the common cause of ensuring market growth and disease control. Considering the cause of current conflict between private dealers and contract growing companies, an agreed private sector driven mechanism for justified price fixation of live commercial broiler chicken can usher such unity. The government can engage itself and facilitate the process. The government action can be justified from the point of view of preventing practices that may have adverse effect on competition and to promote and sustain competition in markets. As a welfare state, it is also imperative on the part of the government to ensure freedom of trade carried on by other participants in market as highlighted in the study findings.

Setting up of a new or strengthening of existing representative professional organizations is important to achieve this coordination. Government can support such an institution during its formative stage under a designed conditional funding program. It worth mentioning that conditional cash transfer program such as *Janani Suraksha Yojana* to incentivise the use of health services have shown results in India.

The conditions in this regard can be the proactive role of the said institution for:

- Registration of commercial farms and other trade related infrastructures under the supervision of government offices mandated by law.
- Registration of vehicles used in live bird transport
- Collective framing and implementation of rules for bio-security control particularly the prevention of high concentrations of farms and unhygienic retailing, both at roadsides and in markets.
- Periodic organization of awareness camps.

*Incentives:* The Falakata and adjoining areas of Jalpaiguri district are showing a concentrated growth of farms primarily due to presence of economic drivers. It will be difficult to prevent construction of new farms. To ensure that the future growth is planned and bio –secure, the government should engage with financial institutions to declare Falakata and select adjoining areas as production clusters ensuring the smooth delivery of credit for innovative projects promoted by various stakeholders.

*Infrastructures:* To prevent entry of diseases from distant and local markets. Support can be provided for setting up common utility centres such as vehicle cleaning and disinfection facility at identified locations e.g. entry and halting points.

*Investments:* To discourage open wet chicken retailing (road sides in particular), government should facilitate private investment in hygienic and value added retailing, setting up processing and by product utilization facilities etc.

*Innovation:* Appropriate design of vehicles for long distance live bird transport taking care of factors like ease of cleaning, better stocking and comfort of birds can help augment the interstate export. Awareness and studies should be initiated to augment innovation in addressing issues of humane farming and control of pollution from farms in populated areas.

#### **For Dhubri district:**

Poor communication, inadequate infrastructure and support system, a surge in inter-state import of live chicken from Jalpaiguri and Coochbehar, is collectively affecting the competitiveness of local farmers within the district. The value chain (commercial as well as local bird) is dominated by the ready bird dealers.

The demand driven movement of products e.g. live birds, poultry feed, day old chicks etc. cannot be restricted easily to safeguard the local producers. The trade route of live birds through Dhubri is the lifeline ensuring supply to large parts of lower Assam and the Garo Hill districts of Meghalaya along with other north eastern states. It is imperative that government facilitates this trade. The facilitation in this context is to eliminate ‘red tape’ and to take administrative measures to insulate the trade from trade politics and protectionist manoeuvring. Such facilitation will bring in confidence amongst live bird traders and government can engage with them to ensure bio –secure practices in stocking and transport besides investment in designed stocking facilities in appropriate localities.

Establishing common facilities at point of entry of Dhubri town (e.g. Gauripur) for vehicle cleaning and disinfection will help in reducing possible viral load in these vehicles thus safeguarding the disease transmission. The justification of public investment for such a facility lies on the fact that the equipment needed to properly clean large vehicle is relatively expensive and requires a source of power. The facility will re-enforce the message to private stakeholders regarding the threat and allow government to monitor movements.

Any HPAI risk management program within the district should be aimed at engaging the ready bird dealers. The risk communication strategy should be designed based on risk profile and risk perception of such dealers (refer page 44 for chain governance in Dhubri)

An incentive based program can also be initiated to assist ready bird dealers who are willing to invest on setting up of hygienic stock holding points or wholesale / retail outlets.

***Suggestion for Free-range sector in both the districts:***

To ensure incentive for backyard bio-secure free range farming both in Jalpaiguri and Dhubri, it can be suggested to focus more on designed demand side intervention such as centralized aggregation of products, preliminary processing e.g. cleaning and sorting in case of eggs and branded urban retailing targeted at high value niche market.

The initiative of Government of West Bengal under ‘*Rashtriya Krishi Vikash Yojana*’ ( refer page 32-33 ) from 2008 to 2010 to develop a sustainable market linked model to ensure farm level voluntary involvement, investment in bio-security needs in free range sector should be strengthened further.

Collaboration with private players for continuous supply of genetically improved pullets and private sector extension services through network of commercial brooder farms can help in meeting the existing supply side constraints to augment free-range farming.

***Risk communication:***

The third and important dimension of risk analysis framework, the ‘risk communication’ is of significant importance for success of HPAI control. The current value chain study recorded role of various stakeholders, the relationships and motivation behind decisions they take. The learning can be shared during future facilitated risk communication workshops to develop a jointly owned (e.g. private and public sector together) communication action plan for each of the study areas.

***The Policy options:***

To materialize above suggestions, it will be imperative for the government to consider policy options of state intervention to ensure fair competition between contract growing companies and private dealers in case of Jalpaiguri and facilitation of demand driven interstate trade of poultry in case of Dhubri. For better implementation of the policy, the government should empower itself with a dynamic database of private sector stakeholders in both the districts. Periodic impact assessment in terms of private investment, disease control, consumer benefit and livelihood support will help government in reviewing the policy from time to time.



## **ANNEXURE-I: Field Data Collection guide**

### **Rapid Situational Analysis and Risk study**

#### Products for Value Chain Study (Delimitation will be done for detail study later on)

Live Birds (Local / Improved Local / Broiler / Colored birds / Ducks / other birds ), Egg (Table Egg, Duck egg, Hatching Egg), Day Old Chicken/ Duck, Poultry Feed, Medicine & Vaccines, Dressed / Processed / Frozen Meat besides by products such as poultry offal, feather, litter etc.

#### Required Secondary Information:

1. Census atlas-2011 of Assam & West Bengal
2. Block wise livestock population data. ( Exploring village level data –where possible )
3. A copy of recent district disaster management plan. ( Dhubri / Jalpaiguri )
4. Detail HPAI outbreak data ( Including clade information and epicenter wise culling data )
5. Government surveillance plan, targeted areas (if any) and data thereof.
6. District topography details, Agri zone and climate ( month wise ) : Check with KVKs
7. District map indicating administrative divisions / blocks. ( Marking of epicenters / villages affected )
8. Map indicating water bodies, rivers and canals.
9. Map indicating major routes (Based on volume of traffic movement), inter state and International gate and major trading centers.
10. List of licensed shop for poultry related business ( As available with Local municipal administration )
11. List of markets and important trading places with commodity traded, volume etc. from District offices of Agricultural Marketing Board. ( Market category definition as per State )
12. District wise administrative set up for Veterinary Services. (Location of hospitals / dispensaries )
13. Detail of socio-economic profile of people in both the districts (including concentration point of each of the known tribe), distinct cultural practices, time of festivities etc.
14. International border details.( Illegal trade hotspots based on interview, observation and possibly photographs )
15. Total number of loan application granted by district lead bank for setting up of poultry related enterprises from the year 2010 onwards? (To establish increasing / decreasing enterprise trend –if any!)
16. Year wise data of Municipal / town committee licensed register to depict growth of food joints selling exclusive chicken products. ( Any possible estimation of unlicensed food joints )
17. Any market data at identified stockist at district level to show trend of trade in frozen chicken products.

#### Data to be collected during preliminary visit:

1. List of key individual contacts as available with feed / medicine company sales representative active in the area.
2. Estimated number of farms sector wise ( Sector definition as per FAO –ECTAD framework )

Date: 30th September 2012

3. List of stakeholder organizations ( Government / Non government / Private )
4. List of major shops / traders ( with addresses ) selling inputs ( Including medicine shops )
5. Supply sources (for import) and Destination (for export): Need to capture frequency and volume to link it with risk.
6. Loading and unloading points for imported / exported<sup>19</sup> poultry inputs. ( Including resting points of loaded vehicles )
7. Possible data e.g. numbers per day / month on inter State / Inter district movement of loaded vehicles of poultry related products. ( Observation at gate / Sourcing of data from gate record )
8. Sources (Geographical location) of various feed ingredients and hatching egg for commercial hatcheries.
9. Data on contract growing e.g. Areas, Active companies, their technical manpower, produce volume and presence in retailing.
10. Information on major production clusters (Based on % contribution to total district production) across the district. Tentative estimation of number of farms in such clusters.
11. Identified villages with sizeable backyard poultry population ( Estimated % population vis a vis total district population ) Source: Field Vets and VFAs
12. List / location of registered hatcheries, feed mills, processing centers etc. with installed capacity ( Source : Industry department / Market contacts )
13. Location of parent farms ( if any )
14. List of members of local Poultry Association, Self Help Groups / Federations.
15. List of sanctuaries with history of migratory bird arrival (If any).
16. Major tourist destination / festivities etc. ( or places where people congregate )
17. Location of military and refugee camps (With approximate population).
18. At least 3 years price data on main products in poultry business.

Observation to be made: (Photographs are essential)

1. Frozen chicken product brands as available in local shops.
2. Practices in local wet chicken market
3. Home delivery market (The Business of *pheriwalas*!)
4. Means of transport of birds
5. Means of disposal of poultry waste
6. Bio-security measures adopted e.g. washing of vehicles

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<sup>19</sup> Inter-district, Inter State and International

## **ANNEXURE-II (The FGD Guide)**

*This KII (Key Informant Interview) / FGD (Focused Group Discussion) guide is prepared for interaction with following List of Key Informants / stakeholder groups:*

- a. *Commercial Broiler / Colour bird Farm Owner*
- b. *Commercial Layer Farm Owner*
- c. *Owners of Parent Farms*
- d. *Officials of Government farms*
- e. *Backyard Poultry Farmers ( Chicken + Duck + Other birds )*
- f. *Feed Millers*
- g. *Hatchery Owners ( Including government –if any )*
- h. *Day Old Chick (DOC) dealers.*
- i. *Medicine / Feed supplement dealers*
- j. *Live Bird wholesalers*
- k. *Live Bird / Dressed bird retailers*
- l. *Officials of Organized slaughter house & Processing centres ( Including By Products sector --Government / Private )*
- m. *Veterinarians, Members of government surveillance team / Rapid Action Team for HPAI (Government / Private), Field Assistants / Vaccinators / Village Level Workers)*
- n. *Municipal and other regulatory Officials*
- o. *Officials of Marketing Committee / Board official / lessee*
- p. *NGO and other development workers*
- q. *Bank and officials of development agencies.*
- r. *Feriwala's and small time aggregator of backyard birds / eggs*
- s. *Stockist / traders of Frozen / Value added products*
- t. *Hotel / Restaurant / Food joint owners*
- u. *Owners / drivers of transport vehicles / Association of transporters*
- v. *Check gate officials / Police and person from law enforcement agencies*
- w. *Managers / technical experts of Companies engaged with contract growing*
- x. *Retail shops selling Eggs*
- y. *Village headman / priest / Intellectuals / Local Resident*
- z. *Company sales representative*

*Please note any other stakeholder group:*

Note for interviewer

*The learning from this study will be used by FARMER to facilitate effective policy making / project development for poultry sector growth including control of diseases like HPAI.*

*FARMER intends to facilitate ‘people centered’ actions focussing on 6 ‘I’s such as incentive for positive behaviour, Infrastructure development, investment facilitation, input quality, innovation and institution building.*

*Following are guide questions only. Choice of question from amongst the suggested one for a particular key informant / FGD will depend on judgement of the interviewer. For groups / KII where no guide question is provided, interviewer needs to use his own ingenuity. The approach of the interviewer should be that of a person who wants to learn about the business of the interviewee in order to document and share it with others for common good. E.g. Better government policy. Note that the text in italics along side each guide question is the intent or logic behind the question)*

*Interviewers need to internalize required information and engage in informal talks with the key informant, sequencing questions best suited to the flow of conversation. As far as possible interviews / FGD are to be conducted near business places of interviewees / participants.*

*It is suggested that, conversations be recorded where possible and interviewer does his or her information compilation immediately after the interview, sitting in a neutral place. Where possible, it is suggested that a minimum of two interviewers are present during interview of a key informant or conducting a FGD and they consult each other while compiling collected information.*

*Voice Recordings and spot learning note of the interviewer for each of the individual and group interaction will be the basis for qualitative risk assessment and identification of value chain options, actors and dynamics thereof.*

*Seek permission of the interviewee for taking photograph in his / her premise.*

**Sampling:** *Convenience and representative sampling method should be used for selecting a key informant. A sampling frame can be:*

- *List of contacts available with any active trader or a feed / medicine company sales representative active in the area.*
- *List of institution as collected from office of sub divisional officer (SDO), District Administration, District Veterinary / Rural Development and Industry department.*

*For making the sample representative, care should be taken to include respondents of different economic and social strata. Key informants / participants of FGD should come from various administrative units within the district. Representative map of each district with routes should be prepared beforehand for ease of locating key informants/ FGD participants and to save time on travel.*

*Sample size for any group should be as much as possible.*

**Guide questions for Commercial Parent / Broiler / Layer / Colour bird Farm Owner:**

*(This guide can also be used for government farms with required modification of questions considering mandate of government institution)*

Name of Key Informant / leader of FGD participants:

Contact Address (With telephone):

Location of farm / FGD (If different from above):

GPS Locator reading (of the location):

Sector of Farm / Majority of participants:

HPAI Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. How long you are in this business? Tell us about your endeavour, growth story and problems faced –if any (*Need to capture: Investment, Years of Experience, business environment awareness, business growth and specific problem faced etc.*)
2. What according to you is population of farms / birds in your locality? Did you observe growth in last few years? How frequently you meet other farm owners? Do you help each other? (*Need to Capture: Existence of collective efforts or trend of organized activity e.g. SHG, Cooperatives etc.*)
3. Where from you are getting farm inputs e.g. Chick / Feed / Equipments / Litter material etc Can you help us understand price and market of these inputs? Are you happy with the quality of inputs? What care do you take to ensure profit, bio-security and quality? (*Focus on all possible inputs. Need to capture source of inputs – if any from outside the district, item wise cost of various inputs, existence of credit market, affect of season on availability, awareness and initiative at farm level to check quality and bio-security*)
4. How do you ensure regular production? (*Identify practices e.g. All in All out / multiple batches*) Any specific market requirement e.g. preferred bird weight etc.
5. When is the flush and lean season? What are difficult periods in a year in terms of farm management? E.g. costly input, outbreak of diseases.
6. Can you elaborate about your marketing arrangements? (*Capture: Destination of live birds (Any distant market out side the district?), Role of traders (e.g. monetary advances, multiple or single pick up), Own marketing arrangements, Institutional Sale (e.g. Sale to hotels, army base –if any), margin in each cases etc.*)
7. Are you happy with live bird price you are getting as of now? When in the year prices are high or low? Do you know any other way to get better price e.g. sale to army, Border trade?
8. Did you attempt to sale dressed birds from your farm premises e.g. against bulk orders.
9. Do you get any market for used litter materials / bird dropping? What are the other sources of revenue in a poultry farm? (E.g. Gunny bags.)
10. Where are you selling spent hens ( in case of layer farms )?
11. Do you allow consumers to buy directly from your farm? (*Capture: Any restriction of people's or vehicle movement*)
12. How do you perceive risk in your business? What should we all do to help poultry business? Do you get a chance to discuss poultry related issues in any platform? Who takes leaderships e.g. Hatchery owners, traders (*Capture local dynamics – e.g. few people influencing everything?*)



Date: 30th September 2012

13. Do you remember last bird flu outbreak? Did you suffer any loss due to bird flu?  
Could you collect compensation? (Note expressions: Satisfied / Angry / Indifferent etc)
14. Who provides you veterinary services? (Government / Private / Own). What care should we take to prevent diseases? ( Give grade + or ++ based awareness of the interviewee )
15. How are you planning to expand your business? What according to you one can do apart from being poultry farmer (Capture: Any alternative or related business with similar skill requirement: willingness and trend towards integration!

Write here any other questions that may be relevant in the context of understanding of the business of commercial farming and dynamics thereof.

**Guide questions for Backyard Chicken and Duck Farm Owner:**

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (The of the location):

HPAI Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. How important are the birds in your backyard? (Capture: Contribution of BYP to household income / insurance / cultural contribution e.g. Cock fight etc.)
2. Do you keep other domestic / wild birds? What is the demand of such birds? (Capture: Domestic / wild bird interaction, how big is the business of such birds?).
3. What care should we need to take for the birds? ( Capture the bio-security awareness, practices and strategy of the farmer / group to manage feed, vaccine, ,veterinary service, shelter etc, )
4. Do you think vaccination can save birds from diseases? ( Capture : risk perception, tolerance and faith on veterinary care )
5. Besides incubating own, do you buy chicken / duck for rearing in your backyard? Do you incur any cost in rearing besides market price of the young chick / pullet ?( Capture: Source of birds, investment per bird till market age )
6. Is there anybody (e.g. Micro Credit) who gives credit or supply pullet / duck for rearing in the back yard? ( Capture: Organized action – if any for contract growing )
7. Do you sale live bird or egg? To whom? Did he/ she give you any advance? (Capture: Role & practices of aggregator )
8. Are there any period or month / festivities when prices go up? Where or which market do you think most of the live local birds are traded?
9. What is the price given by the trader or aggregator when products are collected from home and / or local market? ( Capture : Profit to farmers / margin )

10. How do you think one can get better price of live local chicken / local egg? ( *Capture: additional marketing channels* )

*Write here any other questions that may be relevant in the context of understanding of the business of backyard farming and dynamics thereof.*

**Guide questions for Feed miller / Hatchery Owner:**

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. How long you are in this business? Tell us about your endeavour, growth story and problems faced –if any (*Need to capture: Investment, franchisee agreement-if any, Brand name, Installed capacity, % utilization, Years of Experience business environment awareness, business growth and specific problem faced etc.*)
2. Are you (do you plan) integrating your business? E.g. setting up of own farm / contract farm?
3. How many people are there in this business in your district? How frequently you meet them? Any club / association?
4. Can you give us rough idea of volume / size of the business (in terms of unit or rupees) in your district?
5. Where from are you getting feed ingredient (including supplements) or Hatching Egg? Can you elaborate about place of origin of the input and number of such suppliers?
6. Any unique feed ingredient in your area? Prices / Source?
7. What are your current production (in case of feed mill) / Placement (in case of hatchery)?
8. Can you elaborate on current prices of inputs? What is the normal frequency of procurement? Do you need to stock inputs?
9. Are you happy with the quality of inputs? What care do you take to ensure profit, bio-security and quality?
10. Do you have access to any laboratory for feed testing? What according to you constraints a feed miller / hatchery owner in producing quality feed / Day Old Chicken?
11. Can you elaborate on production cost and profit margin per unit of production? Do you frequently need to absorb the loss due sudden change in input prices?
12. How do you rate your competitiveness in comparison with a hatchery or feed mill from known production belts within the country? What are the main constraints?
13. Any factor that influences price change of inputs e.g. Disease in parent farm?
14. When is the flush and lean season for your business? What are difficult periods in a year in terms of management / business risk? E.g. costly input, outbreak of diseases in parent farms etc.
15. Can you elaborate about your marketing arrangements? (*Capture: Destination of feed / Day Old Chick (Any distant market out side the district?), any Institutional Sale (e.g. Sale to Government?),*

Date: 30th September 2012

16. Do you rely on any third party to market your products? How many of such clients do you have? Any estimate of traders dealing with feed and / or Day Old Chick within your district?
17. How is the competition like? Do you see supplies from outside the district? What is the volume of trade from outside the district? Alternatively, do you sale outside your district? Any export potential through borders?
18. Any business that you think can best integrate with feed / hatchery business? e.g. Food Processing -Soy chunks production with Feed Mill
19. Any by-product of your operation e.g. Hatchery waste meal? Quantity and disposal / use (if any)?
20. Are you facing any issues / regulatory related policy actions that are hampering growth of business? Can you elaborate?

*Write here any other questions that may be relevant in the context of understanding of the business of Feed Millers, Hatcheries and dynamics thereof.*

***Guide questions for Traders of farm Inputs (DOC, Feed, Equipments, Medicine, Supplements, litter material for farms) wholesalers and retailers of poultry products (e.g. Live or dressed Chicken / Egg):***

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. How long you are in this business? Tell us about your endeavour, growth story and problems faced –if any (*Need to capture: Investment, Details of traded products, Categories of trading e.g. stockist to retailer, years of Experience, business environment awareness, business growth and specific problem faced etc.*)
2. People perceive that traders are just ‘middle man’ who does not make much investment of his / her own. Can you elaborate as to what kind of investment is required for one to start trading in poultry inputs? How tough is the business (*Capture: Entry barriers!*)
3. Are you (do you plan) integrating your business? E.g. setting up of hatchery, feed mill, own farm / contract farm?
4. How do you help a client farmer? Can you elaborate on farmer –trader symbiotic relationship?
5. What are the risks associated with your business? Any suggestion as how to face such risk?
6. How many people are there in trading business in your district? How frequently you meet them? Any club / association? (*Capture: Number of feed and medicine trader*)

Date: 30th September 2012

7. Besides government farms / establishments, do you have any other institutional clients for your farm inputs or Poultry Products?
8. Where from are you getting farm inputs or Poultry products for trading? Any farm input or poultry product from outside the district? What is the volume entering district per input?
9. How frequently you need to stock farm inputs or Poultry products? Is storage or delivery to farmers place / consumer a problem? What kind of infrastructure do you have or you take on rent?
10. Can you give us rough idea of volume / size of the poultry trading business (in terms of unit or rupees for each of the product) in your district?
11. What do you do to ensure and maintain quality of traded farm inputs or quality, hygiene / safety of poultry products for consumers?
12. Any specific steps / activity you take to ensure bio-security or to help prevent outbreak of diseases.
13. How about international trade from your district? (Capture: *products, source / destination, volume, frequency, nature of trade etc.*)
14. How frequently you meet poultry traders from across the international borders?
15. What according to you determine the prices of farm inputs and/or poultry products? How can market forces affect your margin? How traders can play positive role in justified and transparent pricing?
16. Are you facing any regulatory hassles e.g. Renewal of Trade licence, Sale tax? Can you elaborate on this?

*Write here any other questions that may be relevant in the context of understanding of the business of Poultry traders and dynamics thereof.*

***Guide questions for manufacturers of processed products e.g. Packaged frozen chicken, further processed products, Value added Products made from by products ( e.g. Poultry offal, feather, Poultry Farm Yard Manure etc. )***

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. How long you are in this business? Tell us about your endeavour, growth story and problems faced –if any (*Need to capture: Nature of Investment, Installed capacity, Local vis a vis National Company, Details of manufactured products, Brands, Standard of Technological inputs, Quality certifications, years of Experience, business environment awareness, business growth and specific problem faced etc.*)

Date: 30th September 2012

2. Are you (do you plan) integrating your business? E.g. setting up of hatchery, feed mill, own farm / contract farm?
3. Where from you are getting raw materials e.g. Chicken / Egg / Poultry Farm Yard manure etc can you help us understand price and market of these raw materials? Are you happy with the quality of available local supply? What care do you take to ensure profit, bio-security and quality? (*Focus on all possible inputs required in the processing unit, Need to capture source of such inputs – if any from outside the district, item wise cost of various inputs affect of season on availability, awareness and initiative at farm level to check quality and bio-security*)
4. Can you elaborate about your marketing arrangements? (*Capture: Destination of processed products (Any distant market out side the district?), Involvement of third partying marketing etc.*)
5. What is the different risk in your business? Can you elaborate on individual or collective efforts to address such risk?

*Write here any other questions that may be relevant in the context of understanding of the business of processing industry and dynamics thereof.*

***Guide questions for Veterinarians, Members of government surveillance team / Rapid Action Team for HPAI, Field Assistants / Vaccinators / Village Level Workers)***

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Zone: Infected / Surveillance zone / Non-infected zone

Guide Questions:

1. Can you help us list the commercial and Backyard poultry production areas separately for your district? What is your opinion regarding growth of farms / bird population in these areas in last few years?
2. Can you help us understand the risk in poultry business (*Facilitate the discussion by explaining various forms of risk such as People, Process, Policy, Political, Technological and Financial*)?
3. From your experience, can you elaborate on profit margin at various stage of value addition in poultry business?
4. Which class of stakeholder e.g. farmer, trader, processors do you think are most influential and why? Can you help us list organizations of poultry stakeholders active within the district?
5. Can you identify any unique practice e.g. Cock fight within the district that is related poultry?
6. Regarding bio-security, what according to you is preventing some people to follow the guidelines?
7. Did you come across any poultry input (including medicine / supplements) which are of unknown origin and /or imported to the district?



Date: 30th September 2012

8. What is your opinion regarding current practices related to disposal of poultry offals, feathers, manure? Do you know any one using these by-products?

*Write here any other questions that may be relevant in the context of understanding of poultry value chain and dynamics thereof from an informant Veterinarian and other service providers.*

**Guide questions for Municipal and other regulatory / check gate Officials:**

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Guide Questions:

1. Can you help us with year-wise statistics (last 3 years) on registered business premises / shops etc along with nature of business in the field of in poultry (including poultry related food joints) within the township / district?
2. Are you enforcing any law regarding waste disposal and clean / hygienic wet chicken market?
3. Do you play any role in fixing of prices of poultry products?
4. Are you aware of import of poultry related materials from neighbouring countries? Is there any system to keep track of such legal and / or informal trade?
5. How many vehicles are there within the district with “Livestock Permit”? What is the criteria and fee requirement for granting a permit?
6. Do you have any statistics on inter district, inter state and between border country movements of vehicles with livestock permit?
7. What are the establishment / annual cost to a trader in terms of trade licence fee etc.?

*Write here any other questions that may be relevant in the context of understanding of poultry value chain and dynamics thereof from an informant regulatory official.*

**Guide questions for Officials of Marketing Committee / District Marketing Board official / lessee etc.**

Name of Key Informant / Leader of FGD participants:

Contact Address (With telephone)

Location of interview / FGD (If different from above):

GPS Locator reading (of the location):

Guide Questions:

1. Can you help us list known markets within the district where live chicken are traded?

“Poultry Value Chain Analysis for Risk based and People centered control of HPAI in two recent HPAI affected districts Viz. Jalpaiguri (West Bengal) and Dhubri (Assam) of Eastern India”.

Date: 30th September 2012

2. Do you observe aggregation of local and / or broiler chicken / local egg (in such markets) for onward movement to urban areas or outside the district?
3. What is the volume of trade in such cases?
4. Any other birds being traded? Is there any major aggregation.
5. Can you give some information on market fees and other fees that farmer / trader aggregators need to pay.

*Write here any other questions that may be relevant in the context of understanding of poultry value chain and dynamics thereof from an informant marketing committee members.*

## **ANNEXURE-III Attribute Guide for recording locations**

### **ATTRIBUTES TO BE TAKEN FOR GPS MAP**

#### **(1) Parent Farm (PF)**

- Size
- Ownership
- Status

#### **(2) Farm (F)**

- Size of the farm
- Sector (1, 2, 3, 3b and 4a, 4b)\* Based on observation: Housing / Bio-security practice / Kind of birds (Broiler / Traditional Chicken / Duck)
- Ownership (Private / Integration Company with Name of the company)
- Status ( Running / Closed )

#### **(3) Feed Mill (FM)**

- Capacity ( Ton per hour )
- Ownership ( Company with integration business / Private )

#### **(4) Hatchery (H)**

- Capacity ( Number of DOC per week or month )
- Ownership ( Company with integration business / Private / Facility hiring )
- Single source hatching / multiple source hatching

#### **(5) Live Bird Market (LBM)**

- Cutting point numbers
- Kind of market ( Primary Market- daily / weekly + Regulated Whole sale Market )
- Volume ( in kg )

#### **(6) Consumption Point (CP)**

- Military / Refugee Camp
- Large Residential Complex

#### **(7) Vehicle Resting / Halting Points on road (VRP):**

- Whether transfer takes place ( Yes / No )
- Traffic ( Grade A, B, or C )
- Existence of cleaning facility etc.

#### **(8) Holding Point (HP)**

- Size / Capacity ( Number of Live Bird )

#### **(9) Input Stock Point (SP)**

**(10) Agri –Storage (Cold Storage) Facility (ASF)**

**(11) Dealers Point (DP)**

- Weekly Placement
- Daily Feed Sale

**(12) Integration Company Office (ICO)**

- Name of Company (s)
- Total Number of Office ( If same point )

**(13) Veterinary Facility (VF)**

- Private / Government ( VFP )
- Laboratory ( VFL )

**(14) Landmarks (LM)**

- Hospitals ( LMH )
- Police Stations ( LMPS )
- Bus stand / Railway Station ( LMBS / LMRS )
- Tourist Place ( LMTP )
- Townships ( LMT )

**(15) Check Gate (CG)**

- Inter State
- International
- Inter District
- Tax

**(16) Village with Duck / Local Chicken (VLDC)**

- Estimated population
- Water bodies in the village
- Commercial farm in the village

**(17) Known Beels and Ponds within the identified blocks (Ponds)**

(Take the GPS coordinates on both sides – where possible)

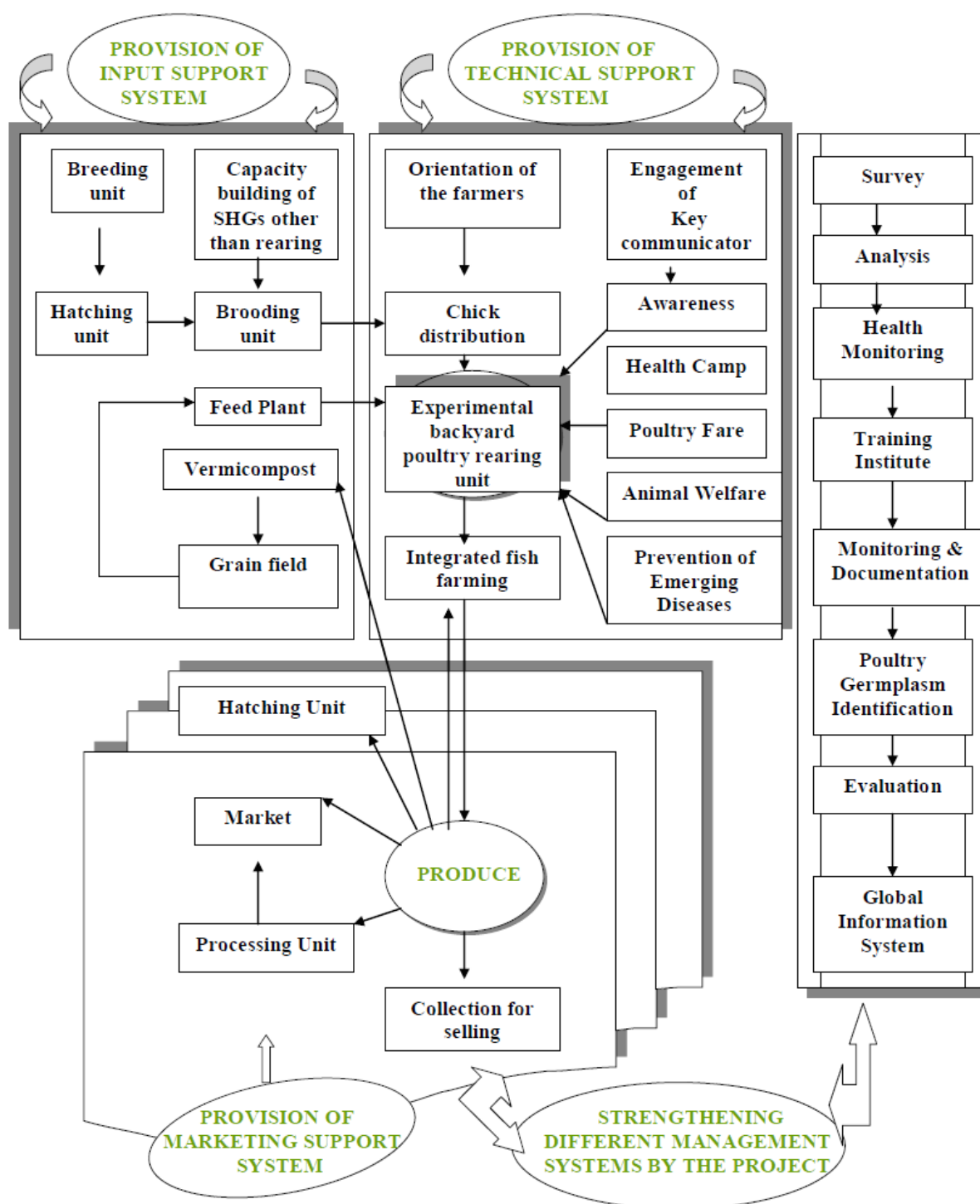
**(18) Any Other (Misc)**

(Write Nature of facility / Point related to Poultry)

NB: Sector definition as per FAO

## ANNEXURE-IV Glimpse of government intervention for promotion of free range Egg farming

### GLIMPSE OF GOI SUPPORTED PROJECT IN JALPAIGURI DIST. FOR PROMOTION OF FREE-RANGE EGG FARMING (SOURCE: WBUAFS)





## **ANNEXURE-V Estimating total number of Commercial farms in Jalpaiguri**

### Total DOC Placement weekly

By Integration companies : 285000  
By Private dealers : 80,000  
Total : 365000 Day Old Chick per week

### Finding of sample study consisting of 109 farms:

Number of Category A farms (Farm capacity  $\leq 1000$  birds, Average farm size: 500) : 37 (34%)

Number of Category B farms (Farm capacity 1000 to 3000 birds, Average farm size: 1500): 57 (52%):

Number of Category C farms (Farm capacity 3000 and above, Average farm size: 3000): 15 (14%):

Based on the finding of sample study, total placement in sample farms can be calculated as:  
Total number of placement of DOC in a category of farm = Total number of sample farm in that category x Average farm size

And as such:

Placement in Category A:  $37 \times 500 = 18500$

Placement in Category B:  $57 \times 1500 = 85500$

Placemen in category C:  $15 \times 3000 = 45000$

Total placement in 109 farms of the sample (A+B+C) = 149000

Considering the data of total weekly placement within the area,

The remaining number of placement will be:  $365000 - 149000 = 216000$

Now using the sample finding of percentage of farms in each category, the remaining placement can be divided as follows:

Category A :  $216000 \times 34\% = 73440$

Category B :  $216000 \times 52\% = 112320$

Category C :  $216000 \times 14\% = 30240$

Now considering average farm size for each category,

Number of farms (outside sample)

Category A :  $73440 / 500 = 147$

Category B :  $112320 / 1500 = 75$

Category C :  $30240 / 3000 = 10$

Total number farms outside sample: 232

Based on above calculation approximate total number of farms category wise within the area can be listed as:

Category A farm : 184 (37+147)

Category B farm : 132 (75+57)

Category C farm : 25 (15 +10)

Total farms: 109 (sample) + 232 = 341

NB: The above calculation contradicts with sample finding that category B farms are highest in the study area. The reason for this may be due to the fact that there is concentration of integration farms (which are mostly within the range of 1500-3000 capacity) in areas from where samples were taken.

## **ANNEXURE-VI Estimating total direct employment in commercial poultry business in Jalpaiguri**

Considering number of persons engaged in three categories of farms as 1, 2 and 3 respectively for category A, B, C)

### **I. Direct Employment in commercial farms:**

Category A farm:  $184 \times 1$  person = 184

Category B farm:  $132 \times 2$  persons = 264

Category C farm:  $25 \times 3$  persons = 75

Total employment = 523

### **II. Direct Employment by Private dealers**

Taking employment for 3 persons for dealer and 2 persons for sub dealer (including owners)

Private Dealer:  $15 \times 3 = 45$

Sub dealer:  $13 \times 2 = 26$

Total: 71

### **III. Employment by Integration Company:**

Maximum Employment in Integration set up: Office staff (4) + Line Supervisor (5) + Lifting persons (3) + Veterinarian (1)

Considering variation in operation, the average employment per company can be safely assumed at 8 persons per company:

Considering total 7 companies in the study area,

Total persons engaged by integration companies will be  $7 \times 8 = 56$

### **IV. Employment by wet chicken retail units:**

Total retail units within the study area: 186

Considering 2 direct employment per unit,

Total Employment:  $186 \times 2 = 372$

### **V. Employment in Feed mills**

Considering 10 employees per 500 MT of production per month (including labor) and total production from 12 feed mills in Jalpaiguri at 46000 MT per month.

The total number of persons in feed mills can be calculated at:

So, total people: 92

### **VI. Employment in Hatchery:**

Based on experience survey (Data cannot be authenticated)

Serial No	Name of the hatchery	Capacity per month	Approx. Employment
1	Dreamland Hatchery	6 lakhs	25
2	Amrit Hatchery	1 lakhs	6
3	Sona Vets	1 lakhs	6
4	Polygon Hatchery	1 lakh	6
5	Uttara Hatchery	80,000	5
6	Sondha Hatchery	30,000	4
7	Arambagh Hatchery	50,000	5
8	Himalayan Hatchery	40,000	4
9	Samrat Hatchery	20,000	3
	TOTAL	1120000*	64

\*Much of this production is catering to larger market of North Bengal, Bihar and North East India

A. Total estimated employment in core sector: (I to VI): 1178 (523 + 71 + 56 + 372 + 92 + 64)

Rough Estimate: ~ 1200

NB: The calculation ignores the fact that a section of dealers / sub dealers are also farmers.

Employment in additional Sectors: (Based on Experience Survey)

I. Transporters:

No specific data could be collected on vehicles with Livestock permit. Finding of experience indicates around 200 drivers and helpers.

II. Tailors (Engaged with stitching of curtains used in farms): Approximate number 10

III. Trader of gunny bag: Approximate numbers 15

IV. Packaging (Bamboo Craft man): 15

V. Litter (used in deep litter system of farm management) material supplier: 10

Total Employment in additional Sector: (I to V): 250

Grand Total of people directly employed in commercial poultry business in Jalpaiguri district: 1500

## ANNEXURE-VII List of Study Team Members

Name	Designation
Dr.Miftahul Islam Barbaruah	Study team leader
Dr.Gitartha Dutta	Senior team member
Mr.Rituraj Bhagawati	Senior team member
Dr.S.U.Ahmed	Chief- Administration
Dr.Anup Saikia	Hon. Advisor – GIS
Dr.S.K.Das	Hon. Advisor
Dr.Praresh Sharma	Hon.Advisor
Dr.Parimal Roychoudhury	Hon. Advisor
Dr.Sarwar Sader	Hon. Advisor
Mr.Pranjal Prakash Sharma	Hon.Advisor
Mr.Pranjal Borah	Hon Advisor
Mr.C.S.Mondol	Sr.Local Team Member
Mr.R.N.Pal	Jr. Local Team Member
Mr.Sandipan Acharya	Local Team Member ( PT)
Mr.Jayanta Nath	Supporting Member -GIS
Mr.Mrinal Baruah	Supporting Member-GIS
Mr.Deep Bhatta	Supporting Member-GIS
Ms. Trishna Chagkakoty	Supporting Member-GIS