

Case Study

Smallholder Producers Under Vertical Integration in Andhra Pradesh



SOUTH ASIA
Pro Poor Livestock Policy Programme
A joint initiative of NDB and FAO

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Abstract

Poultry is one of the fastest growing segments within the agricultural sector in India today. One of the factors behind this phenomenal growth is contract farming under vertical integration. In principle, contract farming could be an institutional arrangement that enables farmers' access to markets and supply of inputs and is a model practiced by private corporations to monetize the technological advances through decentralized production and market driven process. The system per se is a replicable model and can be best adapted for market based development approaches. However it only provides a broad structural solution for livestock based livelihood initiatives. In the context of the poor farmers, it fails to be inclusive as they lack basic requirements mandated by the integrators. Moreover it has limitations to its environmental sustainability as well as scope for participatory governance by the contract farmers. This information document looks at the process of contract farming being practiced at Venkateshwara Hatcheries limited (VHL), and reviews the process of contract farming and showcases the limitation in context to small/landless farmers and makes recommendations of how it can be made pro-poor which can contribute to the development of the poor poultry rearers.

1. Introduction

1.1 The Poultry Industry and Contract Farming in India

Poultry is one of the fastest growing segments within the agricultural sector in India today. Production of eggs and Broilers has increased at the rate of 12-15% per annum against 1.5 to 2% in agricultural crops (Watt Poultry, 2008). Adoption of industrial type commercial farming under the contract farming system has provided the major impetus ("push factor") for the Broiler industry. The Poultry Industry which was under a severe threat due to production and price risks has gradually revived with the replication of this model. This process has been widely accepted by the farmers who now have greater choices (see Box 1). This transformation has been possible due to several other "pull factors" like - growth in per capita income, growth in urban population, increase in demand of poultry goods due to fall in poultry prices etc.

Box 1: Reflections of the farmers to choose Venkateshwara Hatcheries Limited (VHL)

- Began poultry farming as first timer under integration as subsidiary to marginal cropping,
- Additional income generation- better than main crop utilising available family labour,
- Bankers came forward for additional lending for constructing shed - bank linkage for credits,
- No need for working capital as every thing is provided by the company including the equipments on soft terms,
- Regular payments for the growing charges,
- Computerised and Transparent deals,
- Assured lifting of birds at the end of cycle – no uncertainty of sales,
- Better performing breed – Cobb,
- Quality and supply of inputs is consistent,
- Any prominent person in the village can introduce grower to company without being a co obligate.

India produces over 46 billion eggs annually and 1.9 million tons of poultry meat. It is now the world's third largest egg producer and the eighteenth largest producer of Broilers. Among the Indian States, Andhra Pradesh, Tamil Nadu, Maharashtra, West Bengal and Punjab account for more than 71% of the total output. (FAO Poultry Sector Review, September 2008). The sector now offers employment to at least 3 million people and accounts for 3% of the Gross National Product (GNP). It contributes to 10% of the Gross Domestic Product (GDP) or roughly a little over Rs 26,000 crores or Rs 260 billion to the national income (Poultry International, 2006).

This report is an empirical analysis of the impact of contract farming on smallholder perspectives as practiced by Venkateshwara Hatcheries Ltd (VHL) in the State of Andhra Pradesh in India. It is observed that the vertical integration as a process provides structural solution for pro poor livelihood initiatives. The primary question that this report puts forward is how this process of contract farming under vertical integration has encouraged poultry keeping by small farmers while dealing with issues of technology, working capital, market and enterprise risks where at the same time asset specificity, land ownership are pre-requisites and how it can be made pro poor for greater benefit of the disadvantaged.

1.2 Growth of poultry in Andhra Pradesh

Andhra Pradesh is one of the leading poultry producing States in India. Meat production is estimated at 1.4 million tons which accounts for over one-fifth of poultry meat production in the country (GoAP, 1997). Egg production is also substantially higher in the State contributing to one-third of the country's egg production. For the period 1980/81 to 1998/99, poultry meat production increased by 4.5 times while egg production rose by 3.5 times (GOAP Economic Survey, 1997). The industry is lobbying to get tax and energy tariff relief at par with agriculture. The formation of the Meat & Poultry Development Corporation in 1977 was an important milestone in poultry development in the State especially in rural areas. Contract farming in layers began two decades ago and flourished for some time till egg powder was being exported from 6 plants in the State to EU countries. Later when the product failed to get through pesticide residue norms under new trade regimes, 3 plants closed production and subsequently most of the layer farms were converted to Broilers to fulfil the new demand for meat [GoAP, 1997].

In 2003, there were about 50 poultry hatcheries producing 60 million Broiler chicks and 45 million layer chicks (FAO, 2003). Presently there are about 25,000 poultry farms engaged in poultry production creating additional employment for 320,000 people involved in production, marketing, hatcheries, equipment manufacturing. A total of 1 million tons of manure equivalent to 400,000 tons of synthetic fertiliser is produced in the State every year. At present the capital investment is at Rs. 15 billion and value of eggs, poultry meat etc is Rs. 30 billion annually. 40% of the farms are concentrated in 3 of 24 districts (Ranga Reddy, East Godavari and West Godavari) (FAO, 2003).

The factors behind growth, as elsewhere, included the technological advancements, falling real prices for poultry meat, availability of local supplies of corn and soybean, and rising middle class. The existing market for eggs and meat coupled with the introduction of contract farming with or without vertical integration and thrust by lending institutions accelerated the growth rates. The financial institutions, especially the public sector banks, have played supportive roles in pumping capital requirements by the producers on priority basis [NABARD, 2007]. The farm sizes which were around 2,000-3,000 birds during early 80s are now very rare to find. Most of the farms now fall in the range of 8,000 to 15,000 birds [da Silva, 2005]. The scaling up has reduced transaction costs for the integrators and also has given scope for entry of new local integrators in the sector. Most of the farmers who started small during 80s now either have perfected the art of growing chicks and have expanded their farm size or have dropped out. About 30% of chicken meat and 20% of eggs produced in the State finds a market in other neighbouring states (GOAP Economic Survey, 1997).

The poultry sector sees the predominance of the integration between small and large integrator corporations where large independent farmers form a network of small farmers for forward integration. There are also a number of 'good times' Broiler farmers who source infrastructures on lease basis for Broiler rearing activities. Major integrators include Venkateshwara Hatcheries (VHL), Suguna, Sneha, Japfa - (the Indonesian major) and Diamond Hatcheries. VHL were in the Layer segment in the

beginning but started integration in Broilers for the last 3 years. Presently about 70% of the poultry in commercial sector is under integration.

Along with commercial poultry sector co-exists another sector - backyard poultry serving the poorer households and contributing substantially for their income generation and nutritional security. This is dominated by scavenging type *Desi* birds or improved coloured birds which are reared mostly by women in villages for meat and eggs preferred by a market segment. The exchange is facilitated primarily through spot markets. It is an unorganised sector - a livelihood enhancer for the underprivileged. Moreover subsistence poultry farming, based on the local breeds helps sustain biodiversity and proves that poultry farming can be practiced with low inputs.

Thus, two different production streams thrive simultaneously. One of them is driven by technological advancements coupled with integrated production and marketing approaches; and the other based on the traditional knowledge and practices. Both in their own way have contributed to the growth of the poultry sector in India.

1.3 Constraints and prospects

The poultry industry is facing several key constraints such as shortage of corn, increase in handling costs, threats of disease outbreaks and a large live-bird wet market. The live bird market makes up almost 95% of the poultry meat industry sales. However, the booming retail sector is opening up new vistas for processed meat market and is growing at an estimated 15-20% a year. There are indications that the rise in income coupled with greater hygiene awareness will lead to a decline in the wet market share, thus providing an opportunity for the processing industry to set up poultry retail chains. This shift is towards forward integration in the areas like meat processing, storage, transportation and branding along with product differentiation and value addition (GAIN, 2006).

According to VHL and Suguna, a strong brand with value to consumers would avoid commoditisation of poultry meat in the market and thereby enhance returns for the processors / integrators. However, this may not be a good sign for the independent growers and unorganised smallholder producers as the premium prices are mopped up by large corporations whose philosophy of contract farming, benefits mainly the resource-rich farmers. This clearly shows that the poultry sector has undergone a paradigm shift in structure and operation. The significant feature of this change has been its commercialisation through entry of large scale integrators in a small period of three decades (USDA).

2. Contract Farming under Vertical Integration – A Brief Overview

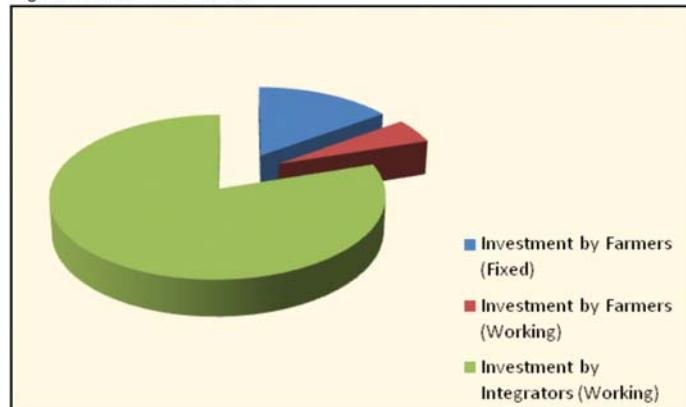
Vertical integration is the organisational design of a firm in which it owns two or more stages in the value chain and controls the decision making on product attributes and the logistics. A contract farming arrangement in Broiler production, referred to as “chick growing agreement” is an intermediary form of supply chain governance adopted by firms to secure access to full grown Broilers meeting desired specified quality, quantity, and location and timing as “demanded by the market”(Da Silva, 2005).

It is generally a wage contract between an “integrator”, who supplies the intermediate inputs and procures the output, and a grower, who provides the primary inputs in the production process. The integrator provides the growing stock (day - old - chicks; fatteners), feeds, veterinary supplies and services, and implements the final marketing of the output. The contract grower typically provides the space and facilities (land and housing), equipment, utilities, labour (family and / or hired), day - to - day farm management. The grower receives a guaranteed wage for each live bird based on its live weight in a condition that is acceptable to the integrator for the purposes of live sale or slaughter. Payments by kg under some contracts, rather than per head, are designed to give the grower a stake in performance. To ensure effort by the grower, wage contracts also typically have built-in incentive and penalty clauses tied to the grower's ability to meet the integrator's set of specified minimum performance standards. These standards typically refer to feed conversion ratios (FCR). Additional incentives are given to the grower for surpassing the performance standards. For growers who fall below the set standards, corresponding amount per bird is subtracted from the wage bill.

In such types of wage contracts, the integrator bears the cost of chick, feeds and veterinary supplies and other services as shown in Annexure 1. Thus, the major component of working capital is borne by the integrator and he is the absolute owner of movable stocks in the farm. Hence integrators need to monitor production fairly closely, to prevent slacking off by the grower, and diversion of the integrator's inputs such as feed to non-contract uses. Prima facie, the integrator bears all market and production risks. However, the grower does not share the benefits of higher market prices (nor share in the losses due to falling prices -although there are possible inbuilt mechanisms to pass it on to growers as well!) (Down to Earth, 2008)

Contract farming is a mechanism adapted by firms to optimise technological advantages through economies of scale to reduce transaction costs, fulfil market

Figure 1: Investment Profiles



requirements and to ensure long term and predictable business transactions" (Da Silva, 2005).

Table 1: Comparative Economics of Broiler Farming					
Farm Under Integration		Independent Farm			
Farm Size		2,000	Farm Size		2,000
Mortality %		7	Mortality %		7
Number of Birds Sold		1,860	Number of Birds Sold		1,860
Cycles in Year		6	Cycles in Year		5
Average GC/Kg		2.8	Sale price/Kg		42
Integrator	Per Annum	Per Bird	Local Vendors	Per Annum	Per Bird
Chicks	144,000.00	12.00	Chicks	130,000.00	13.00
Feed	582,000.00	48.50	Feed	540,000.00	54.00
Medicines	12,000.00	1.00	Medicines	18,000.00	2.00
Overheads	18,000.00	1.50	Overheads	0.00	0.00
Total	756,000.00	63.00	Total	688,000.00	69.00
Farmer		Farmer			
Shed and Equipment	150,000.00		Shed and Equipment	150,000.00	
15% Depreciation	22,500.00	1.88	15% Depreciation	22,500.00	2.25
Litter/annum	4,500.00	0.38	Litter/annum	3,750.00	0.38
Electricity	2,400.00	0.20	Electricity	2,000.00	0.20
Labour	12,000.00	1.00	Labour	12,000.00	1.20
Total	41,400.00	3.45	Total	40,250.00	4.03
Gross receipts for farmer		Gross receipts for farmer			
Growing Charges	58,144.00	5.21	Sale of birds	744,000.00	80.00
Gunny Bags	800.00	0.07	Gunny bags	800.00	0.08
Manure	3,600.00	0.30	Manure	3,600.00	0.30
Total	62,544.00	5.57	Total	748,400.00	62.38
Income	21,144.00	2.12	Income	20,150.00	1.82

While wage contracts look attractive to growers, they have two disadvantages that limit their widespread use with smallholders. First, the onus on integrators to closely monitor production makes this an option mostly for locally-based growers. Secondly, to participate in these contracts, a contract grower must typically provide a security with the integrator, in the form of cash deposit or the blank signed cheque leaf prior to engaging in the contract. This is a common contract feature with most of the integrators including VHL. If the grower defaults on the contract, the integrator invokes the security instrument for recovery of the amount due for them. Thus, by default it appears that the system promotes poultry farming with farmers owning basic resources at their disposal.

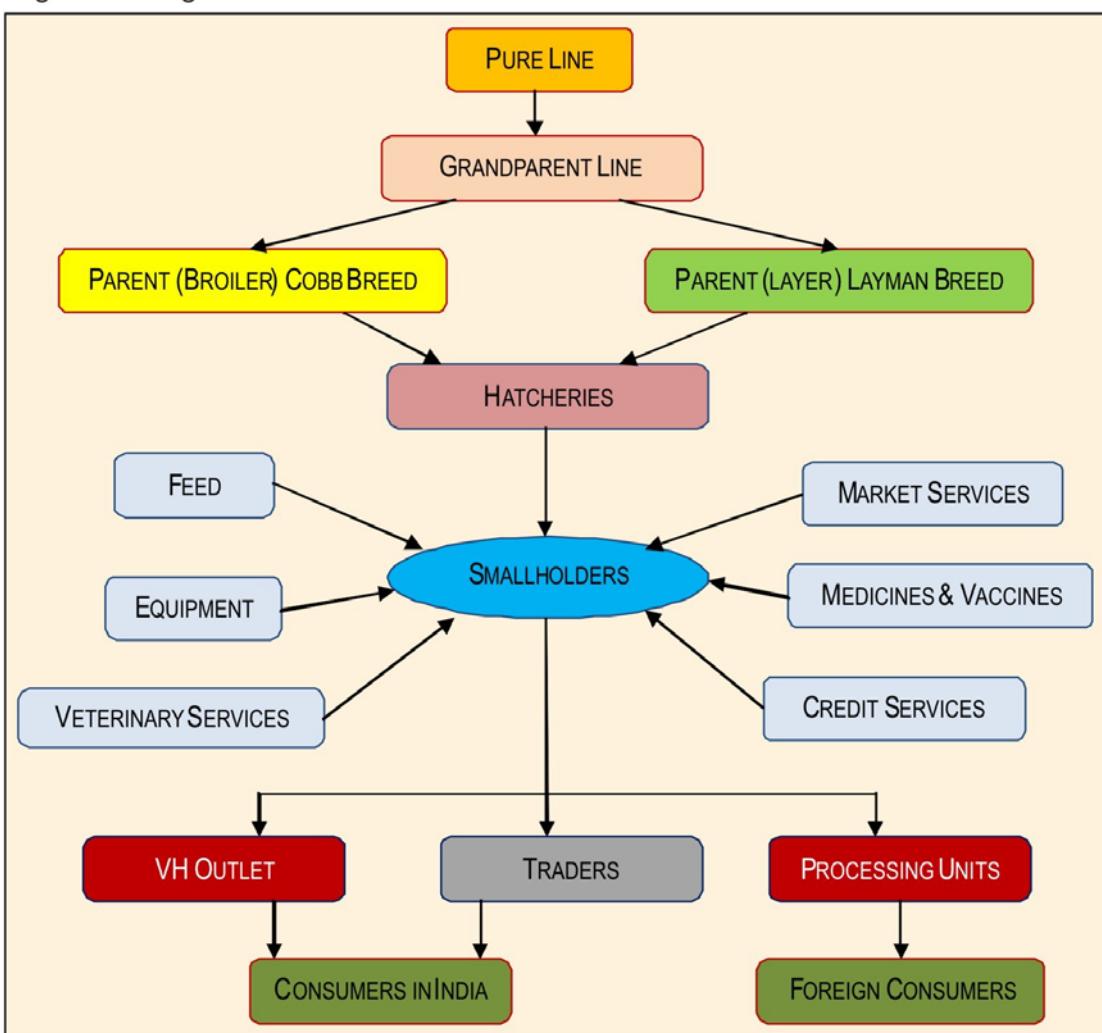
2.1 Integration at Venkateshwara Hatcheries Limited (VHL)

VHL is a pioneer company that has given a definite shape in the development of the Indian poultry industry to its present status on scientific lines. It pioneered the concept

of parent franchisee operations, popularised cage farming. It also took steps to introduce contract farming system in the mid 1990s in southern and western parts of India with smallholder poultry keepers.

The VHL group was established by Padmashree Dr B.V.Rao in 1971 as a franchise of Babcock Poultry Farm Inc., USA. In 1974, it established 'Balaji Foods and Feeds Limited' for processing of eggs into egg powder. Later, the firm expanded its business in an opened retail chains in major metro areas where fresh and frozen chicken, and ready-to-cook frozen chicken are sold directly to consumers. Its Broiler breed VENCOBB has captured 60 per cent of Indian market. It also exports ready-to-eat chicken products. It has a turnover of US\$ 2.9 billion from poultry products (VHL, 2008).

Figure 2: Integration at VHL



2.2. Impact of Vertical Integration on Poultry Farmers

Although vertical Integration is mostly beneficial to medium farmers in general, the salient features of the practices at VHL that have helped expand poultry production base of beneficiaries are:

- It promotes the poultry farming interests by ensuring better utilisation of resources at the disposal of the farmers.

- Practice is in tune with the prevailing broader regulatory policy frame for contracts in agricultural activities.
- The practices provide for a basic sense of security to producers by shifting associated production risks to the company by up to 87% of the total associated risks (*Minot, 2005*) e.g., 5% of the mortalities are allowed by company. Over and above this, the costs get reflected negatively by means of reduced growing charges.
- Provides assured access to markets for the producers located in far flung rural areas and hence reduction in transaction costs to the extent of 58% (*Ramaswamy et al, 2006*).
- Ensures access to credits in terms of input supplies that forms 90% of the working capital requirement.
- The practice has encouraged institutional lenders like banks to come up with finance schemes. The guarantee provided by the integrator definitely adds value to the bankability of the venture by small farmers. Thus, it has helped to infuse additional investments in the sector facilitating its rapid growth.
- Attracts and motivates participation by small farmers with required credit worthy resources. The farmer needs to invest on the shed and other utilities like water, electricity and the family labour for growing chicks.
- Ensures access to technology through intimate extension, timely delivery of technical services and monitoring support to rural producers at their farm gates on daily basis
- Tries to bring in equity by passing on part of benefits from favourable markets to producers in the form of additional incentives over and above the average market prices.

Thus, the concept of vertical integration offers lucrative opportunities for rural producers amidst the risks associated with high input commercial poultry farming. This process encourages smallholders' inclusion in the process by absorbing / cross subsidising operating costs along with the existing medium and large producers in an area. This is being viewed as the key factor for wider acceptability and growth of company beyond the horizons. Eventually these smallholders increase their flock sizes resulting in enhanced income generation. This also matters most for smallholder producers in view of factors like lower opportunity costs for labour, growing mix of crops and poultry helps them to manage livelihood risks efficiently (*FAO, 2003*).

3. Business Practices of Poultry Integrators

a) The growing charges and the concept of farm grading

The methodology for determining the wage rates for contract farmers are complex. Day to day consumption of inputs, mortality, weight gain, etc is recorded on the farm by company's field supervisor. At the end of the cycle, the practice is to add all costs- cost of chicks supplied, feeds consumed, medicines used, etc and average it out on the total live weight of the birds remaining at the end of cycle. This puts lots of strain to keep the Cost of Production (COP) low.

The mortality or morbidity during the early days has less effect than during later stages as the birds would have consumed more feed that increases the costs. Since feed contributes to 60-70% of COP, anything that impinges on quantum of feed utilised in the farm; be it lowered growth rate due to endemic disease problem, low water intake, feed wastage or the theft / siphoning of feed for other livestock or loss of birds due to epidemics directly affects the final wage bill.

Failures to manage the farm efficiently further increases the COP higher than the predetermined level and hence invites penal levying of the wage rates. Another dimension is that the concurrent losses to the tune of 60 – 70% are also borne by the company in terms of additional feed and inputs cost on such inefficient farms. Conversely, higher growth charges can be obtained if the COP is correspondingly on lower side.

b) Provision for market based incentives

If the sales realisation in the market crosses the prefixed target, then additional incentives to the tune of 10 paise per rupee is added to the growing charges. This is to ensure that the grower is compensated for the good prices prevailing in the market so that he is not lured by it and remains within the system.

c) Limited duration obligations

There is no obligation on a farmer to be under integration. i.e., he may terminate the contract at any time after compensating the company for the material values of the materials supplied.

d) Flexibility to accommodate growers' concerns

The practices by the company have been flexible enough to accommodate growers' concerns from time to time. Recently the clause requiring for a third party as guarantor to the agreement has been modified. Any known prominent person in the area can act as an introducer for the farmer instead of the guarantor.

e) Practice of releasing timely payments to growers

This is a primary factor to attract the farmers given their meagre cash flows to meet day to day needs. There are no track records of the company delaying producer payments more than 8 days. This is crucial for ensuring participation of the smallholder producers in poultry production.

f) Operational efficiency

VHL has adopted time tested efficient management practices in production, logistics and marketing under vertically integrated value chain. This resulted in reduced transaction costs and increased returns on the capital employed. Moreover, due to operation at optimum capacity, it is able to optimise returns. This in itself offers a competitive advantage in the market and creates favourable conditions to establish reliable forward integration.

g) Technology and quality of the birds and other inputs

Efficient production of high-value commodities requires a different set of inputs and technologies, which by and large, are not available to a common farmer (Minot, 1986). Transaction costs of acquisition of such technologies could be very high for an individual smallholder, while VHL as a firm has the advantage economies of scale under vertical integration. Venkateshwara Research and Breeding Farm Limited (VRB), a Joint Venture between ISA Babcock Ithaca, N.Y. USA and Venkateshwara Hatcheries Limited, was established in 1980, for undertaking pure line research and breeding work for egg-type chicken suited to Indian agro-climatic and market conditions.

h) Better Margins

During the study, it was found that the farmers with VHL get better returns to the extent of 12-13% more than other integrators. The leverage that contract farmers enjoy over independent farmers is mainly the savings in transaction costs. Although transport costs are charged to the growers account, pooling of supplies has the potential to reduce costs for producers.

3.1 Innovations

The VHL has added value to the generic process practiced within contract farming system in terms of:

- a) **Innovation in technology** as VHL has invested in context specific breed development (Vencobb), value addition to the products and adoption of the new manufacturing technologies. The breed- 'Venkobb' is well adapted and is known for optimum weight gain / egg production across different climatic conditions in India.
- b) **Innovation in delivery system** as they are a pioneer in contract farming which they started in layers and later adapted to Broilers. Vertical integration has helped in delivery of technology to large number of small growers.

4. Limitations: Arguments & Counter Arguments

The system has some limitations that are generic and applicable elsewhere for the contract production system. The system of using the integrators has been widely criticised on dimensions concerning pro poor issues, terms of contract, sharp practices, environmental sustainability and scope for participatory governance by contract producers.

Given the terms of agreement and the practices, it has been observed that the system in its present form cannot reach resource starved rural poor-population who is interested in the enterprise. The system favours people owning land as assets, the eligibility to enter production contracts. This might be a hurdle for many poor landless labourers to initiate small scale ventures under risk shared production contracts. The current scale of operations of VHL does not permit it work with producers with less than 3,000 birds. The cost of transactions to supply inputs and to monitor the progress is very high if there are large numbers of small holders. More importantly the model which are purely based on short term production efficiency tend to ignore the long term negative impacts created through large scale mono culture, high intensity of inputs and high dependency on the outside resources.

Similarly, the security instruments like blank Bank cheque can be reality only when the proposed 100% financial inclusion drive by the government becomes a reality for rural poor. Here the integrators are generally looking towards sharing infrastructure costs and the security aspects of their investments.

However, the system per se is a replicable model and can be best adapted for market based development approaches. The system only provides a broad structural solution for livestock based livelihood initiatives. It is the practice which needs to be reassessed to make it pro poor.

Another practice that is a limitation is that the terms of contract are in favour of the integrator. There are many clauses in the practice that makes it a highly non pro-poor practice and doesn't support self-sustainable development of the poor. For instance, in case of any disputes, the firm can terminate the contract and take possession of its supplies at the farm gate. The producer is not allowed to carry on his own parallel poultry farm or engage in the trade. The period of contract is only for 11 months and is subject to renewal from the integrator; where as the assets created by a poor producer is poultry specific and spread over longer period. It has been observed that most of these terms are only the tools at the disposal of integrator to safe guard his business interests in the counter eventualities. When the firm is bearing most of the required working capital and our concern is to link such arrangement to resource poor producers, one has to strike a reasonable balance between the terms, security for the investment, efficiency and continuity of business. It is unlikely that a business firm uses these as whip when many competing firms are in the fray to win over the producers.

Another matter of concern is prevalence of sharp practices by the Integrators to keep the situations in their favour. One of such practices is manipulating the inputs to tide

over market adversities like declining prices, natural calamities like flood, etc so that gain in body weight by birds is kept at slow pace. This can impact returns to farmers because of higher FCR. Efficiency of the farms depends on the genetic capability of chicks supplied which has many environmental variables. Slackness at the breeder farm maintained by the integrators or the source of chicks can have implications at the farmers' end. Organisations tend to minimise losses by trying to share and spread risks across the stakeholders.

The question of environmental sustainability of such technology intensive interventions has drawn wide spread debate from both the environmental activists and development practitioners. The argument that these commercial options propagate monocultures and eventually endanger biodiversity, increase the epidemic risks and ultimately pose threats to livelihoods of the poultry farmers are raising concerns. To a large extent this argument need to be looked into and the governing policies must be sensitive to these issues while trying to drive the growth to meet both ends. However, the issue that requires attention is whether this has affected the traditional poultry keeping segment in any way. The traditional segment still commands a premium in the market and continues to provide livelihoods to poorest of the poor and the pace of growth may not be in tune with the commercial counterpart for obvious reasons.

Scope for participatory governance by the small holder producers is a desired indicator for any development intervention. Organisations incorporating these values have varied success across different farm segments. Development agencies like PRADAN have tried to make a beginning by emulating the contract farming structure under producer cooperative format. As long as farmer has liberty to exercise choice, to accept or reject contracts, join cooperative or decides to continue as independent producer, the multiplicity and presence of organisations under different formats is desirable. Each has its' pros and cons under various operating conditions.

5. Lessons Learnt

- a) The present system of contract farming under vertical integration has enabled the Broiler industry achieve the new heights across the barriers of investment and technology by minimising the transaction costs within value chains.
- b) System of vertical integration can provide a structural insight for livestock based livelihood development initiatives.
- c) The present practices in vertical integration are not pro poor and hence in no way being seen as a panacea for poverty alleviation initiatives. There are larger issues on sustainability of promoting monocultures at the cost of livestock diversity for livelihood support.
- d) There exists a sizeable segment in the market preferring products derived from local livestock breeds and offers new avenues for livelihood interventions employing vertical integration as concept.

6. Recommendations: How to make Contract Farming Pro Poor and Replicable

The concept of contractual production in poultry under vertical integration offers a model for replication elsewhere for smallholder contexts. However, the system can be fine tuned to make it pro poor and this modified system can be used as an effective tool in implementation of livelihood interventions using small animal production technologies. These interventions include:

a) Ensuring the reach

Contract farming is a model practiced by private corporations to monetise the technological advances through decentralised production and market driven process. The economies of scale necessitates the competitive edge in terms of logistics, cost and time. Obviously the priority is given to those farmers who can afford investments on sheds etc to a minimum operational level and it excludes the resource poor. There are ways to integrate these resource poor with the larger market as shown by PRADAN model. Interventions encouraging more number of smaller size farms/backyard pen stocks, as low as 400 birds - clustered in an area can be an alternative. Small Broiler units can be housed and managed successfully in the conventional low - cost housing built in the backyard. An investment of Rs 15,000 advanced through the existing self help groups (SHGs)) can help in implementation of group rearing activities. The other alternative is that the state can subsidise the differential transaction costs for the integrators on integrating such farms belonging to target groups, so that the benefits of the present market trends can be passed on to them also.

b) Designing alternate development models

Integration of small producers with large processors for intensive farming operations may not be a solution for all contexts. The fact that 70% of the poor continues to draw support for their livelihoods from local livestock, is an indication that a strong but unorganised market exists for such products in spite of growth in commercial productions using a few high-bred lines. A systematically designed intervention can ensure better and organised market for this segment. It has been also observed that the present system of intensive farming is deleterious for biodiversity within a region and this by itself can endanger livelihoods of the vulnerable.

The infrastructure and the scale of operations required for managing niche market could pose bottleneck. It costs millions of rupees to build network of producers, and the related value chain under integration, depending upon the scale of operations. The existing state sponsored forms of institutions like poultry cooperatives doesn't have much say and are asserting only a notional say in the fray. The risk bearing mechanisms have to be worked out if the integration system is to be implemented outside the corporate ambit for niche market segment using local breeds. Suitable approaches for intensification of selective breeding for higher productivity of the local birds may be considered.

There are advantages in such alternative forms of business institutions in terms of inclusion and equity. The system design requirements for success and sustenance of such models in the backdrop of the experiences in building such institutions for efficiency and effectiveness need a different perspective.

c) **Cross sector partnerships**

Investments and the technology contemplated under vertical integration are intensive and prohibitive for small scale farmer owned institutions. The existing infrastructure created by the integrators can also be utilised with renewed collaborations with the companies for local variety of poultry. This can be a reality given the niche market the local poultry commands and the vast scope for innovative interventions for impacting productivity. This can be made possible by integrating traditional knowledge and practices with scientific technological advancements for the development of people and following a self sustainable practice of development.

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