

# **Creating Inclusive Poultry Value Chain: Case of Kesla Poultry Cooperative**

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## **1.0 Introduction**

PRADAN is a public service organisation promoting rural livelihoods in the poverty stricken region of central India<sup>2</sup> – home to the largest concentration of global poor.<sup>3</sup> PRADAN focuses its attention on three main areas viz. creation and enhancement of livelihoods, integrated development of natural resources, and rural enterprises.

This case describes PRADAN's intervention to enhance income from backyard poultry in Kesla block. Efforts initiated in 1992 have led to the establishment of a model for smallholder broiler farming which is being replicated in other states like Jharkhand, Chattisgarh and Orissa. By April 2008 PRADAN was working with 5306 women broiler-farmers, organised into fifteen cooperatives and one producers' company with a collective turnover of about Rs. 400 million. This is the largest conglomeration of smallholder poultry farmers in India

## **2.0 Background and context of intervention**

### **2.1 Profile of the Area**

Kesla is a tribal block in the otherwise prosperous district of Hoshangabad in Madhya Pradesh. About 44 % of Kesla population is tribal, and 13%, scheduled caste. The poultry project is concentrated in the southern part of the block, where nearly 80% of the population is tribal. Typically, a tribal family in the area earns about Rs 15,000-18,000/- year, one-third of which from rain fed-agriculture with low-productivity, another third from collection of minor forest produce, and the rest from wage earnings. Most of the target households' budgets are in deficit; hence they reduce consumption and forward sell the expected produce from agriculture and forest.

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<sup>2</sup> PRADAN is registered as a charitable society in the state of Delhi under the Societies Registration Act (Act XXI of 1860). In 2007 PRADAN worked with 150,000 families of central India – organising women into Self Help Groups and assisting families in their livelihood activities.

<sup>3</sup> Out of an estimated 280 million poor families in India close to 65% live in the central Indian states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, and West Bengal.

## **2.2 Home Based Fowl Rearing in Kesla**

Rearing of country fowls is popular among poor households. A household would typically keep ten to fifteen fowls, which survive mainly by scavenging on household waste. This activity -- backyard country fowl rearing -- uses very little of family resources, labour or cash, and provides Rs.1200-1800/- of income in a good year, mainly meeting requirements for emergency cash. In addition, the family gets some eggs for consumption. The activity also has social value. Poultry is reared for festive occasions, ceremonial purposes, and celebrations, and as a game. Chicken is regarded as a special delicacy with which one may honour one's guests.

It is usually the women in the household who take care of the flock. The tribal households make no efforts to improve the quality of the breed or the flock. Stockbreeding is left to chance; no selective breeding is practiced. Inbreeding is common leading to diminished performance. Veterinary advice is generally not available. Indigenous medicines are sometimes used for known diseases and injury. Less than 5% of the households have built dedicated pens for their flocks; usually the flock shares the owner's home.

Birds attain the weight of 800-900 grams in six to seven months. The birds, on an average, lay thirty to fifty eggs a year in three batches of ten to twenty eggs each. Though hatchability is high 70-80%, the rate of chick mortality is high too at 40-60%. Survival rates across ages are low. During summer due to disease outbreaks the death rate is high; it is not uncommon for the entire flocks to be completely wiped out if a disease breaks out.

## **2.3 Context of poultry (broiler) industry in India**

With India's economy rapidly expanding, growth in the broiler sub-sector is marked by a rising demand for animal protein. Poultry industry has been growing at the rate of 12% annually over the last decade. At present, the annual national consumption is 2.2 million tonnes. A CII-McKinsey report on the sector predicts that demand for broilers would increase by 2015 to 10 billion broilers. The per capita annual chicken consumption in India is 850 grams and in rural areas it is 350 grams against the world average of 9.5 kg. This shows that there is considerable scope for future growth.

Chicken is the first-choice meat for the non-vegetarian population because of its wide culinary adaptability to various Indian cuisines. Chicken is also preferred over goat and lamb on health grounds as it is considered white meat while the latter is red meat, which is harmful to health. Further, chicken is acceptable to

both, the Hindus and the Muslims. Whereas the Hindus do not eat beef for religious reasons (barring a very small segment of the community), the Muslim community, which is predominantly non-vegetarian does not eat pork, again, for religious reasons.

The opportunity to achieve a double-digit annual growth rate in poultry industry has essentially been cornered by the large growers and the lot of the small farms has been worsening; their share in the total marketed production has dwindled from 55% in 1970 to less than 10% today. This process of concentration of production in the hands of big producers has also been aided by the failure of small growers to negotiate with organised poultry industry, which is increasingly becoming market-oriented and vertically integrated.

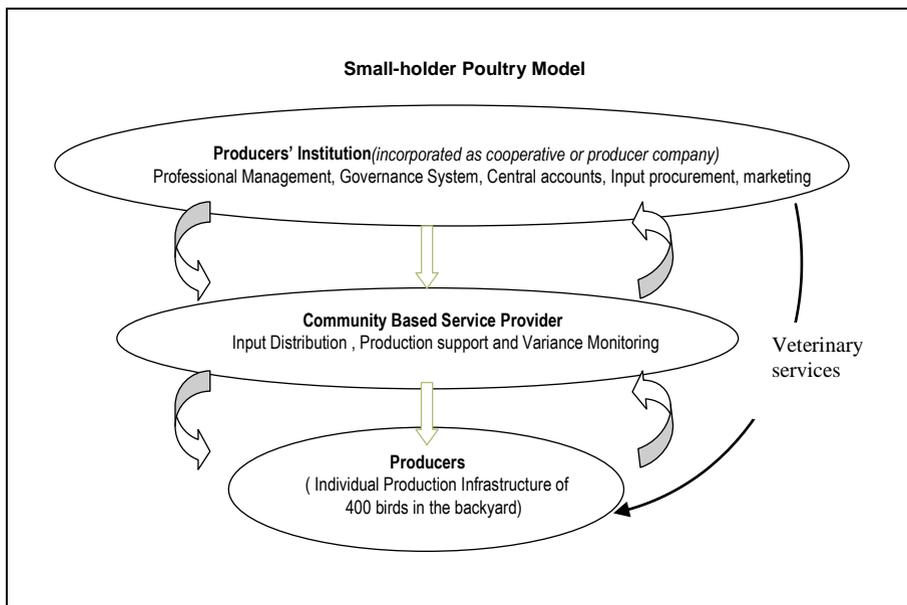
#### **4.0 Home-Based Broiler Farming Intervention**

##### **4.1 Key Elements of the Model**

The home-based broiler poultry model described in the following section has demonstrated that it is possible for the small farmers to participate in this growing industry. They have been able to match the efficiency of big farmers and organised integrators. Today, these producers constitute the largest commercial production houses in the states of Madhya Pradesh and Jharkhand.

The smallholder broiler value chain attempts to adapt the complex production technology to the small farmer's context, and at the same time achieve economies of scale through collective procurement of inputs and marketing of produce. The essential elements of the model are

- Decentralised production infrastructure with 300-400 birds in the homestead backyard which fits into the daily life of the tribal woman
- Production efficiency with rigorous training of producers, intensive production support and on-call referral veterinary services of high quality
- Cost effectiveness with collective procurement of inputs and sale of birds to achieve economies of scale and backward-forward integration
- Creation of a system to address the volatile nature of market by de-linking production efficiency from enterprise efficiency and collectivisation of operations while dealing with markets
- Customised financial and MIS software for decentralised operations
- Charges of para-vets linked to production parameters



**Figure 2: Elements of the Home-based Broiler Poultry Farming Model**

As shown in [Figure 2](#), the model consists of decentralised rearing of birds by primary producers at the village level who are supported by their collective institution for a variety of services. These services are delivered either directly (e.g. veterinary) or through service providers<sup>4</sup> (e.g. input supply, knowledge services) trained by PRADAN. The collective institution is manned by trained professionals and governed by people's representatives. The institution monitors the performance of primary producers through its service providers.

*Functioning of a typical producers' institution:*

All women producers are members of the cooperative/ producers' company. Producers organise themselves into clusters and then select a representative for the Board of Directors. The Board of Directors meets once a month. In this meeting, all the important issues such as input and output prices, performance of different clusters, new appointments, and remuneration and performance of staff are discussed and decisions are taken.

In the monthly Board meeting the CEO, who is responsible for day-to-day management and operational business decisions, reports on the business performance of the cooperative. The CEO is supported by Community-based supervisors for provision of farm services and production management. The

<sup>4</sup> These are rural youth from the local areas who have been trained by PRADAN staff and who identify strongly with the cooperative movement.

supervisors are paid according to their output. The Annual General Meeting (AGM) is convened to discuss issues like distribution of surplus etc. The auditors' report is circulated in advance and is approved in the AGM.

## **4.2 Evolution of the Smallholder Broiler Farming Model**

It is worth noting that the model described above has evolved over two decades of experimentation and intervention, which can be said to have taken place through four stages.

### *Phase I: Experimentation (1988-1992)*

The experimentation stage began in 1988 with trials of improved breeds of cockerels and superior dual-purpose birds. It was soon realised that such breeds were not suitable for the small holder as the production cycle was too long, the market was limited and the capacity of the family to produce them on household waste was also limited. It was soon realised that if money had to be spent on providing shelter and feed to the birds, then perhaps it would be better to choose the best breeds with high feed conversion ratio, short production cycle and good market value.

### *Phase II: Pilot Testing and Demonstration of Broiler Farming (1992-1997)*

This phase was spent in learning the intricacies of raising broilers since they required a sophisticated and technology-intensive production process. Getting an understanding of the markets including the entire value chain was considered crucial for success. For example, in the initial years, some farmers started specialising in brooding (a critical part of production) and then supplied the brooded chicks to other farmers. This process was decentralised after it was discovered that brooders did not have a stake in producing quality brooded chicks as there were no verifiable indicators for quality. Further, much time was spent on learning how to contain diseases – Ranikhet was a major killer during those days.

### *Phase III: Scaling Up (1997-2002)*

While scaling up, it was realised that since poultry industry is highly volatile it is critical to de-link the risks of production from those of the enterprise. If this is not done, producers with better market information would gain and others would lose even their working capital. In 1998, the cooperative evolved a system of fixed prices in consultation with producers, which made it possible to de-link the risks of producers from those of the enterprise. The idea was also applied to inputs, since their prices also tended to vary along with the market price of ready birds. It is this aspect of the Kesla model, which has sustained primary producers

even during recurring market shocks on account of bird-flu scare in the past five years.

*Phase IV: Prototype Development and Replication (2002 to date)*

Creating a market for broilers was the first big hurdle. The cooperative soon realised that the production volumes and the transaction costs in reaching Bhopal market made exploiting that market an unviable proposition. The local “table meat market” was essentially of goat-meat, which was sold fresh -- cut into pieces of required quantities. The chicken sold was mostly country fowl, which was sold by numbers, and not by weight. It took two years to establish broiler as an alternate meat product sold by weight in this market. The growth of Kesla Poultry is closely linked to growth of chicken market in Sarni-Pathakheda. This is a coal-mining area about 60 kms from Kesla, which has a large worker population with high disposable incomes. Till 2000, almost two-thirds of the produce of the cooperative was sold in this market. Even today, the cooperative sells only 10-15% of its total produce in Bhopal; it sells the rest in local markets in a radius of 60km.

In 1992, 2500 table birds were traded per month in the area. By 2005, this area became the third largest broiler cluster in Madhya Pradesh producing over 2 lakh table birds every month. The demonstration of broiler farming with the tribal poor has had a multiplier effect. With the easy availability of poultry feed stores, vaccines, and delivery of chicks at the farm, the job of rearing broiler birds has become much easier. Other large farmers have also found it expedient to set up broiler farms as more bird traders come to the area.

Organising the supply of quality inputs at competitive prices with little production was another challenge that took many years to address. In 2004 PRADAN initiated the smallholder poultry in Jharkhand. Basic inputs like feed and medicines were just not available even in the state capital Ranchi. Producers had to compromise quality of inputs; expired vaccines and spurious medicine of unknown brand was common. Systematically the producer collective started negotiating with manufacturers in Kolkata and given the increasing size of operations a few showed interest and started dealing directly with the co-operatives. The cost of inputs has now drastically reduced due to collective procurement through Jharkhand Poultry Federation

## **5.0 Economic Viability**

### **5.1` Value Chain Analysis**

A comparative view of all the three poultry value chains is provided in Table 1. A comparison of three value chains brings out how the home-based broiler value chain becomes efficient by bringing functions in-house.

Home-based broiler value chain is at its core a scaled-down version of modern industrial broiler value chain. The farmer-centric character of the value chain is key to the success; as at lower unit size return per unit has to be higher than the industrial broiler chain. The small-holder value chain introduced in Kesla increases margin in hands of farmer by eliminating the intermediate actors. The value-chain across the various market hierarchies – the margins and actors is mapped in the table would indicate that introduction of new set of actors as compared to the Indigenous Country Fowl Rearing value chain. The farmer margin as proportion of the total margin in the chain at the production end is about one-third to that of the indigenous value chain however, the key variable to note is the low-carrying capacity of the indigenous value chain giving the farmer low absolute returns.

<b>Table1: Comparison of cooperative value chain with existing supply/value chains</b>			
<b>Particulars</b>	<b>Free-range Backyard Poultry</b>	<b>Modern Industrial Broiler Farming</b>	<b>Home based Broiler Farming</b>
Pre-production features	<ul style="list-style-type: none"> <li>- Chick is obtained from <i>in-situ</i> hatch of eggs in the household</li> <li>- Birds scavenge</li> </ul>	<ul style="list-style-type: none"> <li>- Chicks are supplied from hatcheries</li> <li>- Feed is bought from Compound Livestock Feed Mfg or prepared in-house</li> </ul>	<ul style="list-style-type: none"> <li>- Chicks are supplied from hatchery or of own production</li> <li>- Feed is produced in cooperative's own unit</li> </ul>
Production features	<ul style="list-style-type: none"> <li>- No significant labour deployment required in family</li> <li>- No access to veterinary/technical services</li> </ul>	<ul style="list-style-type: none"> <li>- Outside labour is employed</li> <li>- Veterinary/technical services from market</li> </ul>	<ul style="list-style-type: none"> <li>- Deployment of family labour</li> <li>- In-house round the clock veterinary/technical services at doorstep</li> </ul>
Production cycle (in a year)	1.5	5-6	5-6
Feed conversion ratio (kg of feed / kg body weight of bird)	5	1.8	1.65
Mortality rate (%)	30 %	5%	5.0
Average flock weight (kgs.)	0.9	1.5	1.5

Efficiency Index <sup>5</sup>	60	220	246
Marketing features	Directly picked from farm by procurers or sold in <i>local haats</i>	Involves elaborate chain of wholesalers and distributors for supply to retailers	Direct to retailers, wholesalers, and cooperative owned retail outlets
Total Value Chain Margin (Rs./kg)	63	7.5	9
Average Flock Size (birds)	10	5000	350
Average Investment (‘000 Rs.)	minimal	1000	50
Average Annual Margin (Rs.)	1500	200000	15000
Primary producer’s share in terminal price	60 %	76 %	76 %
Primary producers’ share of overall margin	63 %	33 %	44 %
Price assurance mechanism	Price discovery not in hands of farmers.	No mechanism	Pooled across farmers and time. Delinked production and market.

Tables 2,3, & 4 provide a comparison of the margin analysis for the existing supply chain for home-base fowl rearing and value chain for industrial broiler production with the cooperative value chain for home-based broiler farming.

### ***Home-based fowl rearing***

The starting point of the supply-chain is production of birds in the farmer’s backyard. The total cost of rearing a marketable bird is estimated at Rs.20/ bird<sup>6</sup>. The first transaction takes place in the household when brokers pick up birds from households and take them to the local market – the nearby *haat* or *kasba*, where primary bulking takes place. Traders from cities visit local markets to settle on birds for retailing. Transaction costs include haulage losses and maintenance costs at different points. A distinctive feature of the chain is scarcity of supply in a small, niche market. In the terminal market in urban areas, sale of these birds

$${}^5 \text{Efficiency Index} = \frac{\text{Average body wt (kg)} \times \text{Livability (\%)} \times 100}{\text{FCR} \times \text{No. of days}}$$

<sup>6</sup> This includes the cost of the egg, family labour spread over 180 days and cost of watch & ward calculated at the rate of Rs.3/hour. The food scavenged by the bird is not included in the cost.

constitute a small portion of the retailers' business. Though return per bird to the farmer is high, and the farmer's share in the supply chain is the highest at 63%. However, the annual return for a family maintaining only ten to fifteen birds is Rs.1200-1800/- representing about 10-12% of the annual income.

### ***Industrial Broiler Value Chain***

In this we are considering large private farms of 5000-10000 birds who source the inputs from the market and supply birds in the wet market. A recent phenomena of poultry industry is "integrator" like V H Group, Suguna or Godrej – these large corporates operate at all the value chain nodes vertically coordinating the business. The total production in India as of 2007 in the hands of integrators is about 15 %. In most of the areas where the small-holder poultry model has been introduced the presence of integrators is minimal.

**Table 2: Supply Chain of Home-based Fowl Rearing**

Home-based Country Fowl Rearing								amount in Rs.	
Transaction Points	Cost of Production /Buying	Selling Price	Gross Margin	Transaction Costs	Net Margin	% return	% of terminal market price	% Net Margin of Total Margin	Actors
Production End	20	60	40	0	40	200%	60%	63%	Individual Households
↓									
Brokering Point	60	70	10	5	5	8%	70%	8%	Brokers
↓									
Primary Market/Bulking	70	85	15	5	10	14%	85%	16%	Local Village Haats
↓									
Terminal Market	85	100	15	7	8	9%	100%	13%	Traders

# Prices are illustrative, male birds are costlier by Rs.10-15.

**Table 3: Industrial Broiler Value Chain**

Transaction Points	Cost of Production	Selling Price	Gross Margin	Transaction Costs	Net Margin	% Return on Investment	% of terminal market price	% Net Margin of Total Margin	Actors
Production End	35.5	38	2.5	0	2.5	7%	76%	33%	Entrepreneur
↓									
Wholesaling	38	40	2	1.5	0.5	1%	80%	7%	Traders
↓									
Distribution	40	43	3	1.5	1.5	4%	86%	20%	Traders
↓									
Terminal Market	43	50	7	4	3	7%	100%	40%	Traders

**Table 4: Cooperative value chain for Home-based Broiler Farming**

Home-based Broiler Farming								amount in Rs.	
Transaction Points	Cost of Production /Buying	Selling Price	Gross Margin	Transaction Costs	Net Margin	% return	% of terminal market price	% Net Margin of Total Margin	Actors
Production End	34	38	4	0	4	12%	76%	44%	Individual Households
↓									
Primary Bulking	38	40	2	1	1	3%	80%	11%	Cooperative
↓									
Wholesaling	40	43	3	2	1	3%	86%	11%	Traders
↓									
Terminal Market	43	50	7	4	3	7%	100%	33%	Traders

### ***Home-based Broiler Farming***

The smallholder value chain introduced in Kesla is more efficient than the industrial poultry value chain and thus is able to stay competitive. The main reasons are as follows:

- i. The farmer gets inputs such as poultry feed, day old chicks and veterinary services provided at her doorstep and is thus independent of the resource constraints of the small farmer. The unit size is also designed to allow the family to deploy its surplus labour optimally.
- ii. The production system builds on low (or no) cost slack labour available in the rural households. Thus compared to the large farmer in peri-urban areas the margin is almost 60 % higher
- iii. The aggregation of produce to create marketable lots is done by the poultry cooperative. The increased cost of collectivisation and providing veterinary & management support to farmers is offset by market outreach directly to retailers, thus *doing away with distributors*. Most of the cooperative's market is in the hinterland - dispersed small rural markets requiring wholesalers to service retailers directly at their shop.

The farmer's margin as a proportion of the total margin in the chain at the production end is about 44 %, lower than that of the country fowl supply chain which is 63 %, however the critical point is the absolute income in the hands of farmer, the annual income in the case of home-based broiler farming is much higher at about Rs. 13-18,000.

## **5.2 Economics at Farmer's level**

The woman poultry farmer requires only one cent of land (435 square-feet) for her trade; she may own it or take it on a lease. She earns between Rs.13, 000-18,000 a year, which works out to Rs.65-90 a day for approximately 200 days of

engagement in the activity per year. This income, available to her in a regular stream of cash flows on a continuous basis, helps her to meet her cash expenses and contributes towards capital formation. Financial details of an individual farmer in the value chain are given in Table 5.

As the table shows, a typical broiler farmer can break even in about two years. The woman's participation in the activity has multiple benefits and impacts, which go beyond the mere economic uplift of the household (see Box 1 for an illustration).

**Table 5: Economics of Individual Broiler Unit**

<b>Particulars</b>	<b>Units</b>	<b>Amount</b>
Birds per cycle/ batch	Nos.	400
Batches / year	Nos.	6
Days engagement / yr.	Nos.	210
Capital Investment	Rs.	36,000/-
Working capital	Rs.	17,000/-
Margin / batch	Rs.	3100/-
Annual Margin	Rs.	18600/-
Break even point	Years	2

**Box 1**

**Phoolwati Bai a proud poultry farmer of Mandipura**

Phoolwati Bai lives in village Mandipura. Her family comprise her husband and six sons. She is a landless farmer. Prior to starting poultry her only regular source of income was from loading sand in the local sand mines, earning hardly Rs.10-15 a day. She often migrated to neighboring areas for wage work during harvesting season. Her husband worked as wage labour in Itarsi, 25 km away from Mandipura, earning Rs.1000-1500 every month. She started poultry in 1997. In her first batch she earned Rs.1500. She repaired her house taking a loan of Rs.19,000 from her Self Help Group and successfully repaid from the profit of poultry farm. Family she took a loan of Rs.30,000/- under PMRY<sup>7</sup> to expand her poultry shed in 2005. She has been regularly repaying the installments and is confident to repay it within few years. She and her husband have completely stopped wage labour and migration. She is concerned about her children's education and career. One of her sons passed the higher secondary exam in first division and is now employed. She has also invested in two LIC policies and deposits premium of Rs.883 twice a year. In 2007-08, Phoolwati bai earned Rs.38000/- net income from the broiler rearing activity.

<sup>7</sup> Prime Minister's Rojgar Yojana, a scheme run for self employment of educated youths.

### 5.3 Economics at Cooperative level

The financial performance of the Kesla cooperative, which was registered in 2001, is discussed in brief. Salient financial parameters for the last four years are shown in Table 6. The annual turnover of the cooperative has doubled in the last three years. The surplus is distributed to members and only a small portion is kept by the cooperative. Rs.67.2 lakh distributed to members in 2007-08 is four times more than that of 2004-05. As on 2007-08, its net worth is Rs.33.4 lakhs. In addition it has created a price-risk mitigation fund of Rs.10 lakhs.

**Table 6: Financial Performance of Kelsa Cooperative**

Particulars	2007-08	2006-07	2005-06	2004-05
No. of members	459	376	354	276
Margin distributed to members (Rs.)	6,722,219	4,053,373	2,680,242	1,931,271
Total sales (Rs.)	58,441,173	38,195,184	33,917,392	27,061,784
Gross profit (Rs.)	1,527,175	2,071,622	1,152,429	2,510,402
Profit before non-cash charge (Rs.)	373,950	314,291	253,632	271,411
Net profit (Rs.)	247,850	110,000	(60,078)	45,623

Year 2005-06 was exceptionally bad year for the industry with bird flu scare keeping ready bird prices depressed for 4 months. Margin in hands of farmers dropped as they contributed income from one batch to keep the cooperative afloat, there is a small loss in the cooperative in this year.

### 6.0 Conclusion

Over the past two decades PRADAN has been able to evolve a model of home-based broiler farming by small producers, which has proved both competitive and resilient, generating in the process gainful self-employment for over five thousand women farmers. With a few local adaptations, the model, which was originally developed in Kesla, MP has been replicated successfully in the states of Jharkhand, Orissa and Chattisgarh and is poised for further expansion.

In the last few years poultry industry has become vertically coordinated ie. right from chick production to marketing is increasingly coming under single control. The vertical integrators operating at all the sector nodes – grand parent stock, commercial chicks, feed and marketing have made the industry much more capital intensive and scale sensitive. The current efforts are geared towards making small-holder poultry meet the challenge of sectoral consolidation and scale. The value chain developed helps insulate the families from price fluctuations and supply uncertainties of the market, while

strengthening the production system through improved market access, better capital management, and high quality production services and technical handholding. The small-holder poultry model has demonstrated that it is possible for the small farmers to participate in this growing industry. They have been able to match the efficiency of big farmers and organized integrators. Today, these producers constitute the largest commercial production house in the states of Madhya Pradesh and Jharkhand.

The cooperatives are further federated into two state level secondary organizations, namely Jharkhand Women Poultry Federation and Madhya Pradesh Women Poultry Producers Company. The federations passes on the benefits of: vertical integration, professional and technical support, economies of scale, increased bargaining power with external suppliers and regulators, while providing a platform for knowledge and process-sharing between its member co-operatives. It helps the member co-operatives in a) reducing input cost for feed (*a major component of total expenses*), b) ensure supply consistency through collective purchase or creation of in-house production facilities. This helps leverages the strengths of both centralized and decentralized structures.

A national collective with a mandate to protect and promote the interests of small-holder broiler farmers is planned to be promoted in 2009. The current plans aim at reaching 10000 farmers by the year 2012 with a cumulative annual turnover of Rs.400 crore generating Rs. 35 crore in the hand of member-producers.