CHAPTER II

POULTRY INDUSTRY IN INDIA
Poultry husbandry, as it is understood today, is a comparatively modern enterprise though fowls are known to have been kept, both for pleasure and profit, even as long back as 3300 BC. Breeding poultry as a profession came into existence hardly three centuries ago, the first poultry show in America, which is the largest producer of quality breeds, was held only as late as 1849. All the same, within about a hundred years, poultry farming has developed into an important industry all the world over. The nutritional value of eggs and chicken meat, the pleasure of rearing the birds on one’s own farm or in the house, the relatively small size of chickens, as compared with cattle, sheep and hogs, and the ease with which the birds adapt themselves to a wide variety of conditions, are some of the factors which account for the increasing popularity of poultry keeping and also for the large number of breeds and varieties that have been developed.

As a specialised commercial agricultural business, poultry farming is found primarily in countries with abundant grain production, such as, the United States, Canada, and Australia, or in countries with relatively
high standards of living such as the Western European countries.¹

Over the past one and a half decades the production of poultry meat and eggs has grown faster than that of any other major food in the developing countries. According to FAO statistics, in the livestock sector of the developing countries the output of Bovine, sheep and goat meat and milk grew by hardly 3 per cent per year between the early 'seventies' and the early 'eighties', pork output rose by about 5 per cent. However, production of poultry meat and eggs increased by as much as 8.5 per cent and 6 per cent respectively (see Appendix No.1).

The growing demand for animal products can be attributed to the increase in population and incomes, accompanied by urbanisation and 'westernisation' of dietary habits. The relatively low prices of poultry meat and eggs compared to the prices of other animal products have further stimulated consumption. Finally, the growth in poultry consumption is also due to the food policies which, in many countries, place great emphasis on raising

the levels of animal protein intake.²

Among the top ten egg producing countries, China occupies the first place followed by USSR, USA and Japan occupies the third and fourth positions. India occupies fifth place. And among the world's leading poultry meat producing countries USA ranks first and USSR stands next. China, Brazil and Japan occupies the third, fourth and fifth positions. India stands at the thirteenth position (see Appendix No.2).

In the developing regions, the Republic of Korea in spite of large feed imports is now fully self-sufficient in poultry products. Similar developments are taking place in many other countries. Among them is Saudi Arabia, one of the world's biggest importer of poultry meat, where the degree of self-sufficiency in poultry meat has been attained significantly, while egg production has temporarily exceeded domestic needs in recent years.

This approach of self-sufficiency in poultry products reflects not only to achieve overall development and also to take advantage of the price differentials due to the

avoidance of freight charges of imported products. The long distance transport cost per tonne of poultry products is more than that of the cost of feed required to produce a tonne of meat or eggs. Further more, fresh and locally produced products fetch a premium over the prices for products transported over long distances which, in the case of meat, are generally in frozen form. The price advantage would even be greater in areas or centres where live birds are sold at retailed level.

However, by building up local poultry industries, a considerable number of developing countries has not only become heavily dependent on imported feeds but also on foreign technology, management and other production and processing requisites, costing several billions of dollars a year. Moreover, the expansion of poultry production in the developing countries has largely occurred outside the traditional agricultural sector, and sometimes at the expense of it.

The proportion of intensive, commercial production to total poultry output is closely correlated with the general socio-economic development of individual countries. In the higher income and more urbanised parts of Latin
America and East Asia, the proportion is in between 7.0 and 9.0 per cent and it has reached 90 to 100 per cent in some Middle East countries. However, even in a number of lower income countries in Asia and Africa, such as Pakistan, India, Sri Lanka, Zambia and Ghana, the proportion of output forming intensive commercial production is between one-third and two-thirds of total poultry output.

Independent semi-commercial poultry farming often seems to be a transitional stage with many of these farms eventually being 'integrated' into the operations of larger companies offering regular supplies of inputs and a secure outlet at guaranteed prices. The process of integration has so far been more pronounced in Latin America than in Africa and Asia, though in Asia the poultry industry especially in the Philippines and Thailand is highly integrated.\(^3\) However, traditional production of poultry and other livestock is more important in Africa, South of the Sahara, and in a number of lower income Asian countries (see Appendix No.3). In more remote areas, especially, very little has so far been done to improve traditional

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3. Ibid., pp.39-44.
poultry production. The performance of birds, which are usually kept in small blocks and which scavenge around the homestead being given household scraps and occasionally some grains is low, but hardly any cash outlay is involved, most of the meat and egg output is consumed by the family with small, mostly seasonal surpluses being sold in village markets.

2.1 Poultry in India

Poultry industry in India is on the upsurge and is poised for diversification and ranks fifth in the world. The egg production during the year 1985 touched the level of 16,128 million and broiler 75 million (see Appendix No.4). According to the total industry data in 1985, there were 52 million hybrid layers, 10 million cross breed layers and 20 million desi-hens. With the shortage of day old broiler chicks, the cockerel rearing had assumed significance. During the year 1985 the cockerels numbered 50 million. In addition, other avian species estimated at about 20 million include ducks, quails, guinea, fowls and geese. The gross value of output of poultry and its products mainly eggs and poultry meat in
1985 at current prices, crossed Rs.10,000 million - over 16 fold increase in the past 25 years.

2.1.1 PRODUCTION

In India until recently, poultry farming was egg-oriented. But, today broiler has taken the pride of place with the growing realisation of its more attractive economics of production, compared to that of eggs. The broiler boom is reflected in the fact that, the number of broilers produced had gradually increased and in 1985 their number exceeded to that of improved layer population. Between 1980-85, the broiler output has doubled to 75 million, while the improved layer population had increased from 10 million to 62 million.

2.1.2 LAYERS

The output of egg production during the period between 1960 to 1985 has been impressive. During this period, the annual egg production had increased six-fold from a little under 2,340 million to 14,200 million in 1985. After virtual stagnancy between 1980 and 1983, the egg output picked up and went up by 15 per cent during the period 1983-85.
The expanded egg production was largely confined to certain pockets of the country. About 75 per cent of the egg output is concentrated in the following belts:

**South**: Andhra Pradesh (Hyderabad-Vijayawada-Nellore-Chittoor); Tamil Nadu (Namakkal-Erode-Coimbatore) and Karnataka (Bangalore-Bellary);

**North**: Punjab (Ludhiana-Jalandhar-Gurdaspur-Patiala-Pathankot-Chandigarh); Haryana (Gurgaon-Delhi-Ambala);

**West**: Maharashtra (Bombay-Pune-Nasik-Satara-Sangli) and Gujarat (Vadodara-Valsad-Surat-Kheda);

**East**: West Bengal (Calcutta-Midnapore). The farm size too went up significantly and simultaneously along with concentration of poultry block.

### 2.1.3 BROILERS

During the decade of 70's, the broiler production made its beginning with 4 million in 1971 to reach a level of 30 million by 1980 and 70 million by 1985. In the next five years it was expected to double and touch 150 million. The popularity of poultry meat was mainly due to high cost and decreasing availability of other meats especially chevon and mutton. The expanded broiler production was largely confined to urban and
peri-urban areas.

2.1.4 ALLOTMENT OF FUNDS UNDER PLANS TO POULTRY INDUSTRY DEVELOPMENT

Prior to the introduction of Five Year Plans in India, poultry keeping was largely a backyard venture. Not much attention was paid to breeding, feeding, disease control and management of birds for commercial production. The poultry population was confined to desi birds which were hardy but of low productivity. By the turn of this century, some exotic birds of proven value and productivity were introduced in India by missionary organisations to help farmers supplement their income through poultry raising. They bred exotic breeds and distributed improved chicks to local farmers. Three major centres were developed around Etah in U.P., Katpadi in Tamil Nadu and Surat in Gujarat. One of the earliest pioneers in this field was Spencer Hatch, who in the year 1930 initiated scientific poultry farming in the rural areas around Marthandam in Kanyakumari district of Tamil Nadu. 4

Table 2.1
Five Year Plan Expenditure Between 1951-85 and Outlays Till 1990

<table>
<thead>
<tr>
<th>Plan Periods</th>
<th>Total Plan Expenditure</th>
<th>Agriculture and Allied Activities</th>
<th>Livestock</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plan</td>
<td>1,960</td>
<td>290</td>
<td>16.00</td>
<td>N.A</td>
</tr>
<tr>
<td>1951-56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second Plan</td>
<td>4,672</td>
<td>549</td>
<td>33.47</td>
<td>2.8</td>
</tr>
<tr>
<td>1956-61</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Plan</td>
<td>8,577</td>
<td>1,089</td>
<td>77.00</td>
<td>4.6</td>
</tr>
<tr>
<td>1961-66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Plans</td>
<td>5,625</td>
<td>1,107</td>
<td>59.70</td>
<td>N.A</td>
</tr>
<tr>
<td>1966-69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth Plan</td>
<td>15,779</td>
<td>2,320</td>
<td>154.26</td>
<td>11.5</td>
</tr>
<tr>
<td>1969-74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fifth Plan</td>
<td>39,476</td>
<td>4,865</td>
<td>232.46</td>
<td>35.5</td>
</tr>
<tr>
<td>1974-78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Plans</td>
<td>12,176</td>
<td>1,997</td>
<td>208.70</td>
<td>N.A</td>
</tr>
<tr>
<td>1978-80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sixth Plan</td>
<td>1,10,467</td>
<td>13,620</td>
<td>802.51</td>
<td>12.6</td>
</tr>
<tr>
<td>1980-85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seventh Plan</td>
<td>18,000</td>
<td>22,453</td>
<td>1,076.70</td>
<td>60.2</td>
</tr>
<tr>
<td>1985-90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the First Five Year Plan, a modest pilot project was launched in Orissa under the Chairmanship of Dr. J.N. Panda, the former Director of Animal Husbandry in Orissa. Under the Second Five Year Plan, the outlay allotment was Rs.28.0 millions. Five poultry breeding centres were opened to increase and introduce in different regions and blocks of the country the superior stock under the Technical Cooperation Mission from America. But this planned development failed due to the unbalanced poultry feed, non-availability of quality hybrid chicks, lack of equipment, training and poor marketing facilities.

Under the Third Five Year Plan, the outlay for poultry development was Rs.45.88 million. In this plan a new organisation was started by name Intensive Poultry Development Projects (IPDP's). It was popularised with foreign collaboration of Arbor Acres, Hi-Bred, Rani Shaver and Uni-Chix. Four poultry multiplication farms were set up to enable the egg production to increase to 240 eggs per bird per year. Under the Freedom from Hunger Campaign (FFHC) about 10,000 pure live chicks were imported from Australia in 1965 for government breeding
farms for popularisation of high laying stock.

Annual outlay for the Fourth Five Year Plan was Rs.115.0 million. In 1970 Random Sample Laying Test (RSLT) unit was established at Hessarghatta in Bangalore to stimulate the poultry development. Under this plan the Central Training Institute for Poultry Production and Management (CTIPPM) was set up with the assistance of Food and Agriculture Organisation of United Nations (FAO/UN). Fifth Five Year Plan outlay for poultry development was Rs.355.0 million. Under this plan an additional 17 breeding farms and 55 Intensive Poultry Development projects were set up. Under the Sixth Five Year Plan the outlay was Rs.426.0 million. The Integrated Rural Development Programme (IRDP) which covers 5,000 blocks in India, subsidies amounting to Rs.1,500 crores have been earmarked during the Sixth Five Year Plan. Under the Seventh Five Year Plan, the target of outlay fixed was Rs.602.0 million. It is to be waited and seen for the extent of flourishing this industrial sector.

7. The Hindu, Tuesday, 5th July 1988, p.3.
To fix the egg prices, Central Government proposed to set up a public body instead of NECC (National Egg Coordination Committee) which is privately managed. According to Mr. Raja Rao, Managing Director of the Corporation, the job of fixing egg prices would be transferred to public body within a year. This public body includes the Joint Commissioner to the Government of India, representatives from MARKFED, NECC, NAFED, etc., and farmers.

2.2 Poultry Industry in Andhra Pradesh

Andhra Pradesh when compared with other States, stands first in poultry population, second in buffalo and third in total bovine population.

Poultry farming, which remained a "backyard proposition" till 25 years ago, has undergone radical transformation. Gone are the days when hens used to be kept under inverted baskets. Large hatcheries - there are 30 including a few Grand Parent and Pureline ones - and poultry farms have come up over the years. Even as farmers switch from the deep litter to cage system for better results, there are others who are taking technology
leap with automatic feeding and watering of the birds in the cages, effecting sizeable saving in labour and optimum utilisation of feed.

People driving into Hyderabad from Bangalore, Vijayawada, Nagpur or Bombay will not miss clusters of hatcheries and poultry sheds on either side of the national highways. Elsewhere, in Krishna district, a small town with booming poultry business has lived up to its name - Gudlavalleru, "Guddu" meaning egg.

These are signposts for visitors from other States to herald entry into the "Egg Basket of India". Poultry production contributes about Rs.2,000 crores to the Gross National Product and provides employment to one lakh people directly and to another five lakhs in related fields. Andhra Pradesh takes the lion's share with more than 15,000 poultry farmers producing about 1.70 crore eggs and the three crore broiler chicken producing one lakh kg of meat a day.

The person who almost single-handedly led Andhra Pradesh to the top in the field is Mr. Banda Vasudev Rao. Better known as B.V. Rao, he not only set up a number of
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The person who almost single-handedly led Andhra Pradesh to the top in the field is Mr. Banda Vasudev Rao. Better known as B.V. Rao, he not only set up a number of
poultry units and hatcheries, but also motivated hundreds of others to follow suit. He has knitted the poultry farmers together under the National Egg Coordination Committee (NECC) so that they can market their produce directly. Venkateshara Hatcheries, founded by him, has the largest chain of franchise hatcheries all over India and in the underdeveloped countries.

The Andhra Pradesh Poultry Federation is one of the earliest and largest bodies representing the poultry farmers. Starting with a modest membership of 15 in 1975, it has now grown into a massive institution representing about 10,000 farmers. It has to its credit some achievements - getting status equivalent to agriculture in 1981, power tariff for the sector was reduced from 75 paise a unit to 35 paise in 1976, securing ban on export of vital raw material like deoiled groundnut cake, deoiled rice bran, exemption to poultry units set up before the Urban Ceilings Act came into force and withdrawal of sales tax on poultry meat.

Mr. Sesaiah, President of the Poultry Federation, A.P., said the poultry sector could be gainfully harnessed if the State Government provided concessions and facilities.
Mr. Seshaih quoted estimates to say that every 1,000 birds created additional employment for four persons in production, marketing and infrastructural industries, all round the year unlike in the case of agriculture. The feed ingredients used were those not consumed by human beings. Some of these things were thrown as waste and thanks to the poultry industry, they fetch a good price. Maize, an important feed material, is consumed only by a small section of the population, but its price has gone up from Rs.2,300 a tonne last year to Rs.4,500 a tonne on account of demand from the poultry sector. It is estimated that the total poultry population (layers and broilers) yielded 6.8 lakh tonnes of organic manure equivalent to 2.7 lakh tonnes of synthetic fertilizer.

Egg consumption in India is among the lowest, barely half of that in other developing countries. The actual per annum per capita consumption is 24 eggs and 350 grammes of poultry meat against 180 and 11 kg recommended by the National Institute of Nutrition (NIN).

The phenomenal strides in poultry farming in Andhra Pradesh is beset with problems and challenges. "The
scenario for the future is not too rosy, unless the Government helps us in a big way," says Mr. Seshaih. Particularly vulnerable are the small farmers (owning 5,000 birds or less) who constitute more than half of the poultry farming community in the State. The economics worked out by the Poultry Federation over a nine-month period this year showed that, on an average, a farmer lost 10 paise an egg.

The Federation fears that Maharashtra, where poultry enjoys official support and patronage, may catch up with Andhra Pradesh and threaten its position as the "Egg Basket of India". Of the 1.70 crore eggs produced daily, one crore are exported to other States, notably Maharashtra. In recent times, Maharashtra's share of imports declined gradually from 75 per cent to 25 per cent. Transport costs have also escalated sharply by over 200 per cent. Feed ingredients account for 75 per cent of the total cost of production of eggs and chicken.

A poultry farmer should have a minimum of 10,000 birds to survive in the field, which means an investment of Rs.15 lakhs. According to Mr. Seshaih, about 20 per cent of small farmers, accounting for six million birds,
have gone out of business and the situation might worsen if Non-Resident Indians were allowed to set up giant units.

Poultry farmers' main demand is for status equivalent to agriculture which means a host of concessions and facilities for development. Although the Poultry Federation and the NECC had brought pressure on Government of India to concede this demand and the National Commission on Agriculture, the National Bank for Agriculture and Rural Development (NABARD) and other financial institutions treat poultry as agricultural activity, the Andhra Pradesh Government remained reluctant to honour the Centre's advice in this regard. If the State Government recognised poultry as an agricultural activity, it will mean paying less electricity tariff, land revenue rates, sales tax and getting exemption under income tax. The Poultry Federation claims that the demands put forward by the farmers would not involve to the government more than Rs.6.5 crores per annum.

Maharashtra supplies five eggs a week under its noon-meal scheme and Tamil Nadu two, while Karnataka and West Bengal have agreed in principle to introduce it.
But ironically, in the cradle of poultry industry - Andhra Pradesh, there is not even a move in this direction.

Andhra Pradesh when compared with other States, stands first in poultry population, second in buffalo and third in total bovine population. The State occupies a top place in the country in poultry growth. The hybrid birds are of the order of 120 lakhs with 50-60 lakh egg production per day. About two-thirds of the production is being marketed in the neighbouring States and metropolitan cities. At 5 per cent increase in growth rate, the State may have 148 lakh hybrid birds by the end of Seventh Plan. The per capita consumption of eggs in India is 21 and about 18 or 19 in Andhra Pradesh which is below the average of many developed nations in the world. To raise per capita consumption by 50 per cent more than the present level, the poultry growth needs to be doubled.

The total livestock population in Andhra Pradesh, according to the Statistical Report 1983, is 3,58,56,029. In it, the share of poultry population is 3,23,91,630 constituting 90.33 per cent (see Appendix No.5). Poultry
industry has been making a rapid progress in Andhra Pradesh. The total egg production which was 2,370 million in 1983-84 increased to 3,072 million in 1984-85, 3,136 million in 1985-86, 3,145 million in 1986-87, 3,241 million in 1987-88 and 3,200 million in 1988-89. The next place with regard to production is occupied by milk production. The total milk production was 2,375 thousand tonnes in 1983-84 and it increased to 2,668 thousand tonnes in 1984-85, 2,781 thousand tonnes in 1985-86, 2,783 thousand tonnes in 1986-87, 2,807 thousand tonnes in 1987-88 and 3,200 thousand tonnes in 1988-89. The fish production was 252 thousand tonnes, 237 thousand tonnes, 234 thousand tonnes, 246 thousand tonnes, 246 thousand tonnes, 260 thousand tonnes, 213 thousand tonnes during the respective years from 1983-84 to 1988-89.

The total poultry population in Rayalaseema region of Andhra Pradesh was 50,60,155 constituting 15.62 percent to the total poultry population of Andhra Pradesh during 1983. During the year the total poultry population in Kurnool district was 8,34,476, in Anantapur district 9,07,918, in Cuddapah district 12,68,022 and in
Chittoor district 20,49,739 (see Appendix No.5).

2.3 **Problems and Prospects of Poultry Industry in India**

The poultry industry has reached a stage of self-sufficiency and sophistication in the production of breeding stock, pharmaceuticals, vaccines and equipment to meet the current and future needs.

As noted already that during the last fifteen years the annual production of eggs has tribled to around 15,000 million, while broiler production has increased twenty-fold touching 75 million. Notwithstanding this phenomenal growth - the fastest in India's agricultural sector - the industry is facing sales constraints in recent years which are hindering its development.

Two major constraints in the rapid development of poultry have been the high cost of feed and unremunerative prices of poultry products. One contributing factor to prevailing unremunerative prices is the lack of sound marketing infrastructure in respect of collection, storage, processing and sales of eggs and broilers. Inadequate support services like feed analytical labora-
tories, disease-diagnostic services and monitoring of disease situation are hampering the poultry farmers in achieving higher levels of productivity. The following are the some of the constraints faced by the poultry industry in India.

2.3.1 CONSUMPTION

The per capita availability of eggs in 1985 was 19.3 and that of poultry meat 240 gms. In the last 25 years, the per capita availability of eggs has gone up by four-fold. The actual increase in egg production has been much more, because during this period the human population has gone up by 70 per cent (748 million), while the egg production by six times. One aspect that tends to be overlooked is that the bulk of the consumption of poultry products is centred around urban centres which has the needed purchasing power, and so the per capita figures do not truly reflect the level of consumption of eggs and poultry meat. On the other hand, the Nutritional Advisory Committee of the Indian Council of Medical Research has recommended consumption of half an egg per person per day to meet the minimal requirements of animal
protein. This will become further necessary as the production of pulses is not able to keep pace with the requirements. Eggs are now considered vegetarian and have increasing acceptability even in vegetarian diet. Going by this yardstick, the annual production to meet this expected demand comes to nine times the current level, an astronomical figure of 135 billion. At the end of the century - 8 years hence, this demand would work out to 180 billion eggs, six times the planned output of 30 billion.

One significant fact is that the demand for poultry meat has out-paced its supply. This demand is expected to intensify with the widening gap in the prices of other meat especially mutton and chevon and poultry meat in favour of the latter. Another factor that would give further spurt to this demand is the introduction of chicken-based fast food project. The first unit of the project is expected to be commissioned in 1986 and others are in different stages of planning. This would change the broiler picture beyond recognition.

Another heartening feature of the changing poultry consumption picture is the growing importance of industrial
townships and pockets of affluence in rural areas which are emerging as demand centres for eggs and broilers. But the absence of regulated flow of poultry products, in these centres the prices are much higher than those prevailing in the metropolises. For instance, in parts of Bihar and Orissa as also in the North-Eastern region the egg costs are more than one rupee each. In the Srinagar region of Jammu and Kashmir the poultry meat is retailed at more than Rs.35 per kilogram. Many of these new demand centres of poultry are located away from the traditional egg movement routes and so do not benefit from the movement of eggs and poultry meat.

2.3.2 MARKETING

The marketing of eggs and broilers is the major problem of the industry. The infrastructure facilities for collection, storage, processing and marketing of eggs and broilers are inadequate. The rapid growth in the production of eggs and broilers in recent years has further worsened the situation.

Presently, the poultry trade is predominantly in
the hands of private traders and commission agents, operating in various metropolitan cities. They fix wholesale prices of eggs and table birds on day to day basis, taking into account the supply and demand. The prices so fixed that they have little bearing on the cost of production.

The rural producers find it extremely difficult to get reasonable returns from the small poultry units because prices offered to them are not remunerative.

The State Poultry Corporations/Federations have been playing a useful role in providing marketing support, but their impact has been very limited due to financial constraints. The Government of India has entrusted the responsibility for marketing of eggs and poultry at regional and national level to National Agricultural Cooperative Marketing Federation of India Limited (NAFED) by providing financial support. NAFED has successfully intervened in checking the slumping in prices of eggs and thus helped the farmer to get better prices. However, efforts of NAFED have not had the desired impact on the overall egg marketing situation in the country.
In 1982, a private sector agency was created under the name of National Egg Coordination Committee (NECC) which declares egg prices in Bombay, Hyderabad, Delhi and other important places as well as undertakes market intelligence and promotional activities. This organisation, however, is not able to administer the declared prices due to paucity of funds and cold storage facilities for bulk procurement and storage of eggs.

Major constraint in increasing egg consumption are the lack of consumer education and the high unit value of eggs and nutritional poultry products. Further, there is a need for educating the large proportion of population which is vegetarian to realise that the infertile eggs do not contain any life and thus it can be regarded as vegetarian. This will increase the demand for eggs. Further no sustained campaign has been launched for encouraging egg consumption on national scale.

With the rapid expansion of egg and poultry production, the stress has to be laid on developing the infrastructure for organised marketing and concerted sales promotion. 8

The current situation can be remedied by setting up a national level autonomous poultry marketing board with representatives from all segments of the industry. Already, such boards are functioning even in advanced countries like Australia, America and Canada. The proposed board could undertake marketing operations, including procurement, storage, distribution, processing, and sale of eggs and poultry products. It should also engage in market intelligence and promotional activities.

2.3.3 INPUT INDUSTRY

A network of hatcheries (173 in public and 158 in private sector), feed plants, veterinary, pharmaceuticals and biological and equipment industry had made the country self-sufficient in almost all aspects of inputs needed by the industry.

2.3.4 POULTRY FEED

The annual requirements of poultry feed for commercial poultry were estimated at some 3.0 million tonnes in 1985. The feed production in the organised sector is estimated at 2 million tonnes. The Compound
Livestock Feed Manufacturers' Association of India (CLFMA), with 98 production units, produced about 0.4 million tonnes of poultry feed and feed concentrates constituting less than 15 per cent of the total output. Their installed capacity was 2 million tonnes. However, the bulk of feed is produced in custom-mixing units and on the farm mixtures, largely using concentrates, produced by the organised sector of the livestock feed industry.9

The projected growth in the demand for compounded feed is estimated at 3.4 million tonnes in 1986 and 4.4 million tonnes by the end of the Seventh Plan in 1990. Although highly desirable, there is presently no statutory control on the quality of poultry or other livestock feed. A number of feed analytical laboratories are functioning in the public and private sectors including agricultural universities.

Recently regional laboratories, devoted to poultry feed, have been set up by the Union Ministry of Agriculture in Bhubaneswar, Bombay and Chandigarh with facilities for analysing amino acids. Aflatoxin in feed

9. Ibid., pp.1-12.
continues to be a serious problem, although the replacement of groundnut cake by soyabean meal now available in the country would reduce the problem. In addition to depressing growth and production, it creates problem of immunosuppression and breakdown of immunity. These facilities need to be strengthened to help producing prompt proximate analysis to guide both the farmers and feed formulators in checking the quality of feed and feed ingredients.

Poultry feed was being manufactured by the small and large scale producers in the public and private sectors. Later, its production was reserved exclusively for the small scale sector. However, there is a growing feeling to "de-reserve" to ensure the availability of better quality feed at competitive prices. Today, the bulk of the feed is produced largely using concentrates. They are produced by the organised sector of the livestock and feed industry.

In addition, the manufacture of feed supplements and additives is a growing business of increasing importance. As they are outside the purview of Drugs and Cosmetics Act, a number of small units have mushroomed,
and their products tend not to conform to the specifications. Further, there have been instances of misleading labels. Such feed additives often proved ineffective and at times even harmful to the health of the birds. It is, therefore, desirable that suitable statutory measures are taken to ensure the quality of these additives produced and marketed. One way is to bring them under the purview of the Drugs and Cosmetics Act.

Another step is to keep a continuing check through analysis on their quality as well as those of the ingredients that go into the feed to ensure that the nutritive value of the compounded feed is as per the rated specifications. Another growing problem is the variable quality and price of feed ingredients. The handling and storage of feed is yet another problem that needs to be tackled on modern lines. Presently, the feed is packed in jute bags which add to the cost of marketing. With the increasing size of blocks, there is a scope for storing feed in bins/silos as well as automation in feeding birds.

A beginning has been made in the use of techniques for computerised least-cost feed formulations which provide
all the required nutritional factors at the lowest possible cost under the given situation, taking into account the feed ingredients available and their prevailing costs. One way to reduce the production cost is by utilising non-conventional feed ingredients without compromising the nutritive value of the finished feed. Research in this direction is in progress under the All India Coordinated Research Project on determining free resources and feeding systems. The Project Directorate on poultry improvement will look into more critically the toxic and incriminating agents in non-conventional feeds and evolve methods for detoxification. The research project also involves itself in determining nutrient requirements for high producing layers and broilers in different agro-ecological regions.

2.3.5 BREEDING STOCK

Four strain-crosses - one for layers (ILI-80) from Central Avian Research Institute (CARI) and three for broilers (B-77, IBL-80 and IBB-83 for CARI, Punjab Agricultural Sciences, Bangalore, respectively) were released for commercial exploitation on the recommenda-
tions of the Central Poultry Varietal Release Committee except the B-77 which was released by the IURI before the constitution of this Committee. The purelines/strains involved in these eroses have been made available to Central and State Poultry Breeding Farms and private commercial poultry breeding farms. A pureline multiplication unit is being set up as part of the Project Directorate on Poultry Improvement under the Indian Council of Agricultural Research (ICAR) which will centrally maintain and multiply the selected purelines and make them available to the commercial users.  

In addition, parent stock/commercial chicks, developed in the public sector breeding organisations, were also made available for commercial operations. In the private sector, the commercial chick stock continued to be supplied by the associates of pureline breeding farms as well as of franchisers, based on imported grand parent stock. The import of grand parents is being discouraged and breeding of purelines within the country is being promoted. However, undertaking research and development of purelines require large investments and

10. Ibid., pp.1-12.
with the high interest rates it will be difficult for the existing commercial poultry breeding farms to take it up. Exemption of such research and development effort from income tax and lower rate of interest need serious consideration. The imports are centrally made and the stocks imported are subjected to necessary guarantee and testing of their production, adaptation and disease susceptibility before these are released to commercial poultry breeding programmes. The Union Ministry of Agriculture/ICAR could undertake this responsibility. All plant introductions in a similar manner are being regulated through the National Bureau of Plant Genetic Resources.

2.3.6 PHARMACEUTICALS

Presently, a wide range of veterinary pharmaceuticals are being produced in the country. These include vaccines, additives and drugs. The value of their annual production is estimated at Rs.500 million, as against Rs.16,000 million for human health products. A noteworthy development has been the introduction of the Specific Pathogen Free (SPF) eggs for the production of
vaccines in the private sector. Presently, the SPF flocks are being reared by the Bharatiya Agro-Industries Foundation and Venkateswara Hatcheries Private Limited at Pune.

Although various drugs required for the treatment of poultry diseases are being manufactured in the country, there is however, a need to make available within the country newer types of drugs against 'coceidiesis'. The coceidiesis commonly available in the country are no longer fully effective in preventing the incidence of the disease due to development of resistance of the causative organisms against these drugs. So also drugs for the treatment of such diseases as 'CRD' and 'E Coli' infections and tapeworm infections.

2.3.7 EQUIPMENT

India has made considerable progress in the manufacture of a wide range of modern poultry equipment that has helped the poultry industry to become the most sophisticated in the country. The contribution of the private sector in this respect has been commendable. Today, the country is exporting hatching and feed-mixing
equipment. The trend towards rearing birds in cages has gained popularity in all parts of the country. With the increase in the average size of commercial poultry units and integrated poultry operations, the need for automation has become imperative. Also with the booming broiler production the setting up of mechanised dressing plants has become urgent. Presently, the country has a small semi-automatic dressing plant of 500-600 birds per hour at the central poultry breeding farm in Chandigarh. Also, the offals at the manual dressing units are not put to any significant use. The establishment of mechanical plants would result in the conversion of offals to rich protein source to be recycled into poultry feed, substituting fish meal. For this purpose, offals would have to be processed in rendering plants. This development would open new avenues for the diversification of equipment industry.

2.3.8 HEALTH CARE

The ICAR is initiating a project for developing systems of surveillance, monitoring and forecasting of important livestock and poultry diseases. Simultaneously,
a register of prevalent poultry diseases in different parts of the country should be compiled. Particular attention should be paid to the emerging diseases and steps needed to prepare the country to tackle them. This is being proposed under the High Security Animal Disease Laboratory by the ICAR under the IVRI. The infrastructure for providing health cover to birds needs to be strengthened to minimise economic losses due to diseases.

2.3.9 VACCINES

Vaccines are being produced in 17 public sector veterinary biological production centres, including the Biological Production Division of the Indian Veterinary Research Institute (IVRI). Moreover, there are also three units in production in the private sector. In addition, poultry vaccines are being imported and supplied to actual users under Open General Licence System or on the recommendations of the Animal Husbandry Commissioner, the Government of India. Two units in Pune in the private sector have based their production from the SRF (Specific Pathogen Free) eggs from flocks which are now locally reared.
2.3.10 EDUCATION AND RESEARCH

In the field of education and research, 23 agricultural universities through their 22 constituent veterinary colleges in addition to the Animal Science College of the Haryana Agricultural University, Hissar, and related departments offer undergraduate and postgraduate education in different areas of poultry production. In addition, they also have taken up research programmes on various aspects of poultry production. Two apex agencies are the Central Avian Research Institute (CARI) at Izatnagar, and the Central Training Institute for Poultry Production and Management (CTIPPM) at Hessarghatta in Bangalore. An All India Coordinated Research Project (AICRP) on Poultry for Eggs and Meat, under the sponsorship of the Indian Council of Agricultural Research (ICAR) has been functioning since 1971. During the current Seventh Plan, the ICAR is to take up AICRPs on poultry housing and nutrition. These projects will be placed under the Directorate of Poultry Improvement being set up by the ICAR.

Today, there is no worthwhile organisation that provides consultancy service, based on research and
development (R & D), to solve the problems of the industry. This is particularly affecting the growth of small units which cannot afford to have their own R & D units. Recently, in 1986, the ICAR expanded its mandate to add consultancy as a service to be offered by the laboratories. Thus, the research scientists of ICAR and agricultural universities can now provide consultancy service to industry on actual cost basis, and help in the advancement of the industry.

2.3.11 PROSPECTS

The poultry industry is on the upsurge with production going up, especially of broilers. The number of broiler parent, for example, has gone up by two and a half times between 1980-85 to a level of over 800,000. The shortage of day-old commercial broiler chicks continues. This situation is expected to ease with the increase in the number of broiler parents expected to gain production in 1986 by 25 per cent to a little short of one million. The broiler production is expected to take another leap forward with the advent of fast food projects. 11

11. Ibid., pp.1-12.
The egg production is expected to maintain a steady growth of about 7 per cent per annum despite the increasing cost of feed and day-old chicks. Simultaneously, the unit size of the flock would go up to maintain its economic viability. This may also result in integrated operations, contract farming where the farmer/producer is the foster owner.