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The Untold History Of Pakistan's Poultry Industry: A Review

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ABSTRACT

Birth of Pakistan's poultry industry is often attributed to the sole collaboration of Pakistan's International Air lines- PIA with that of Canada's Messer Shaver's Shaver Breeding Farms. In this way, the role of the Government of Pakistan and British Era's Institutions, in the late 1940s, has been overlooked altogether. In addition, the vital role played by worthy foreign and local investors e.g., Lever's Brothers, Arber Acres Private Limited, Packages Limited, has always been undermined while unfolding the history of Pakistan poultry industry. This paper is a humble effort to put some light on hidden gems of Pakistan's poultry industry. By particularizing their part in framing a strong poultry industry in Pakistan, it is an attempt to express our appreciations towards these pioneers.

INTRODUCTION

Poultry has been an indigenous industry in the subcontinent since long ago; however, it was not an organized business. At the very beginning, no improvements whatsoever in the genetics of bird were accomplished. However, the Government of India (GOI) under the auspices of British rule imported several genetically improved varieties of chicken to help uplift the genetic standard of local poultry population but the non-scientific approach could not be productive (Jamali *et al.*, 2011). Nonetheless, after independence, the Government of Pakistan (GOP) considered this matter seriously and built poultry farms in different cities. Conversely, all the farms were government owned and private sector was excluded altogether. In this way, this effort could not prove fruitful as well (Sajid, 1962). Ultimately, when foreign investor (Shaver from Canada) was included in such scheme (known as PIA-Shaver breeding farms private limited), the resultant collaboration transformed into a novel commercial enterprise in poultry industry. Though before

this collaboration, Lever Brothers had already taken a bold step of establishing a feed mill near oil mill in Rahim Yar Khan. They were the first to import chicks for the successful testing of 'Lever's Feed' (Hafeez, 1970; GOUS, 1987).

To power up these effort, many British era's institutions were producing a much-needed human resource. The famous examples of such efforts were Punjab Veterinary College Lahore, Agriculture College Lyallpur, Agriculture Research Institute Sakrand and Veterinary College Comilla (GOP, 1952). It was the struggle of those brilliant minds, especially poultry veterinarians that helped establish and grow this industry. These centers of excellence are still the engine behind tremendous growth of Pakistan's poultry sector.

COMMERCIAL POULTRY INDUSTRY

Commercial poultry industry in Pakistan is due to the credit of both foreign investors and local government. The indigenous breeds of poultry were not capable to cope with

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the pace of growing needs meat and eggs markets. In this way, the import of highly successful genetic strains of chicken played its part in building this industry. This import is even dated back to 1935 when Indian government under the auspices of British government first imported the improved varieties of poultry in India (pre-independence era) (Jamali *et al.*, 2011). Therefore, the seed of genetic improvement of poultry stock was sown in subcontinent. The major proof of government efforts to flourish the local poultry industry is a report prepared by the then Indian Government: 'The Report on Marketing of Eggs in India and Burma, 1938'. It was the effort of Agriculture Marketing Advisor of Indian Government for the formulation of future policies regarding poultry in country (Islam, 1948). However, due to on going political turmoil in British India in the last days before partition, no efforts could be productive for poultry industry.

Role of Pakistan's Government

After the startup of any industry in a country, the first participant in the growth of that industry is usually its governing regime. The same thing happened with Pakistan's poultry industry. After independence, Pakistan did not have any organized poultry sector. Although, at least 17 local breeds of poultry were reported in Pakistan at that time (Kaura, 1952), yet efforts to purify the local breeds e.g., Asil and Chittagong, could not prove successful (GOP, 1968). However, the government formulated a scheme of corporate farming at national level in 1948 to boost the industry and set-up three poultry research centers across the country: Government Poultry Farm, Landhi (Karachi), Government Poultry Farm, Peshawar, and Government Poultry Farm Tripoli (Lahore Cantt) (Sajid, 1962). The successful outcomes of these farms occasioned in establishing more poultry farms e.g., Government Poultry Farm, Jhimpir and Government Poultry Farm, Smungli, Queta, were also constructed for commercial purposes (GOP, 1961b; Wanamaker, 1961). Although most of these farms were established for the government consumption i.e., farmers could not gain many benefits. In addition, the product of these farms could not reach to indigenous market as well (Islam, 1948). Yet these efforts resulted in public awareness and a high poultry population in the country. For example, in 1951, the overall chicken population in Pakistan was 23 million (including backyard). However, commercial poultry had negligible portion (few hundreds) in it (Reed, 1951). But the commercial chicken population in 1960 'Census of Agriculture' was recorded 30,110: about 10,015 in West Pakistan and 20,095 in East Pakistan (Hall, 1965; GOP, 1964). Another example of Government of Pakistan to revive the poultry was the 'Commonwealth Livestock Farm'. It began as 'Thal Project' (situated in West Pakistan at that time) under the 'Colombo Plan' in mid 1950s. Despite being a livestock farm, a separate poultry unit was established within that farm for the breeding of two important breeds

of chicken: New Hampshire and Leghorn. Both breeds were imported and, after breeding, were distributed among local farmers and households to strengthen local poultry farming (Lawton, 1960). Later such kinds of imported breeds were used for the reciprocal crossing with local breeds of Pakistan to produce a hybrid for better egg production. Although, scattered poultry farming existed after independence yet there were only 26 farms officially known to exist in the whole country (both within the territory of East and West Pakistan) during the period of 1955 to 1960 (Herrick, 1961). Subsequently, poultry 'demonstration units' were also set up across the country for farmer education and improving the performance of local stock. The best example of which was 'demonstration unit' at East Pakistan Academy in the early 1960s (Huq, 1961).

Likewise, several legislative efforts were made for uplifting the industry i.e., poultry was given complete exemption from all kinds of import duties and sales tax in 1962 (Hall, 1965). Shaver, Arber Acres, Hyline, Ross and Piech were among initial poultry investors and influenced the government policies during the period of 1970 to 1975. These policies included the import of duty-free parent flock; income tax exemption for poultry farming; import of duty-free poultry equipment; allotment of state land on lease for poultry farming; export of poultry during slack periods; disease control programs; reduce of duty on import of soybean from 40% to 10% for ration (Cook, 1984). In addition, government officials were also allowed to enter the poultry and agriculture business which were previously prohibited (GOUS, 1987). The government also provided the facilitation to the availability of loans through different financial institutions. Not only local but foreign investors benefited from these loans as well (Memon, 2012). Furthermore, subsidy through United Nation Development Program (UNDP) grants (Cook, 1984) and provision of subsidies on grains to formulate low-cost, high-quality rations were also offered (Memon, 2012). To sum up, any assistance which could have benefited the poultry farmer was provided by the government.

Among these government incentives, declaration of Tuesday and Wednesday as 'meat-less days' is considered mistakenly an incentive to poultry industry as well. On these days, all meat was banned to slaughter except chicken to promote chicken consumption (Memon, 2012). However, this policy was in fact started shortly after independence to conserve the national supply of goat and cattle rather than to promote chicken (Suleri, 1991). The declaration is still effective to date in Pakistan with the existence of the said misconception.

Lever Brothers

Pakistan poultry industry and oil seed processing plants are connected to each other because vegetable meals are part of poultry nutrition. The first foreign investor which could be the pioneer in building commercial poultry industry, is the 'Lever Brothers' (founded by The Right Honorable William

Hesketh Lever and James Darcy Lever, of Great Britain). In 1948, it started business in Pakistan as Lever Brothers Private (Pvt.) Limited (Ltd). Later in 1950, it chose the district of Rahim Yar Khan for establishing their first factory, 'Dalda' processing plant (Dalda, 2024); however, it was formally inaugurated in 1951 by the then Governor General of Pakistan. The first product, 'Dalda Vanaspati' (to be known later as 'Banaspati') was produced by that very first factory in the history of Pakistan. That oil processing plant later developed its link with poultry.

Lever Brothers established the first commercial poultry feed mill in the same district Rahim Yar Khan near Dalda plant (GOP, 1974). It was the Lever Brothers who started formulating poultry feed first time in Pakistan (GOUS, 1987). They formulated their first 'poultry feed' in October 1959 and tested this feed. In addition, Lever Brothers set up a research unit in 1960 in the very district (Rahim Yar Khan). During this year (1960), 600 Nick chicks were imported from United States of America (USA), first time in the history of Pakistan, to test the Lever's Feed. In this way, the experiment successfully refuted the claim that hybrid strains could not survive in hot climates like Pakistan. Separately, at the same time 1000 Chunky chicks were also imported to Karachi and raised there successfully (Hafeez, 1970). To match the rapid growth of poultry farming, feed mills were set up in different areas. There were four feed mills to produce poultry feed in 1971 with a total capacity of 87,000 tons of feed (including livestock feed) annually (GOP, 1971); however, Lever Brothers could not survive and shut down the feed mill business in 1980.

PIA-Shaver Venture

The story of this venture starts with the kitchen needs of Pakistan International Airline (PIA), the official flag carrier of Pakistan in the air. PIA was the leading airline in the world in the 1960s with headquarters in Karachi (capital city at that time). The airline needed a consistent supply of good quality meat for its kitchen, aimed at providing unmatched service to its consumers. Because the local supply was both substandard and uncertain for PIA's high standard cuisine (Hafeez, 1968). To fulfill the need of its kitchen, in 1962, an alliance was established between Canada's Messers Shaver's Shaver Breeding Farms and PIA (PPA, 2021; Ali, 1966). Captain Anwar Masood Khan became the founder Chief Executive of PIA-Shaver (GOP, 1989). Ultimately, commercial poultry farming in Pakistan was started to fill the protein gap created in market by local dairy meat (protein deficiency is still being used as a slogan by poultry industry). But in fact, it was to supply the PIA and Karachi market (Thomson *et al.*, 1997). Within PIA-Shaver, PIA had two-thirds shares and Shaver owned one-third (Ali, 1974). However, this cooperation needed land to implement the ideas and government farms were the easy choice.

Among the government farms started in 1948, the largest farm was 'Landhi Poultry Experimental Station' (Wanamaker, 1961), at Country Club Road, Landhi, Karachi (Hafeez, 1969). It was later known as 'Pakistan Animal Husbandry Research Poultry Experimental Station Landhi' (Herrick, 1961; Palafox and Rosenberg, 1952). It was initially established to breed the Rhode Island Red, Minorca and Leghorn for local supply (GOP, 1949). However, PIA-Shaver alliance chose this farm and, in 1963, it resulted in the establishment of the first PIA-Shaver Poultry Breeding Farms Ltd, Karachi (Hafeez, 1968). In fact, it was the first large scale 'commercial' poultry farm in Pakistan (Hafeez, 1969).

Landhi Poultry Experimental Station consisted of initially 25 acres (Herrick, 1961; Palafox and Rosenberg, 1952) with a total housing capacity of 500 laying birds. Later, this capacity was increased to 3500 in the year 1960 (Herrick, 1961). However, after PIA-Shaver collaboration, when poultry was imported in Pakistan, Shaver leased this farm for the imported stock. At that time, it consisted of 66-70 acres of land to house both grandparents (GP) and parent stocks (PS).

Two strains were imported by PIA-Shaver for their farms: Starcross 288 (table egg layer-white) and Starbro (meat bird or broiler) (Figure 1 and 2) (Ali, 1975). Starbro was the cross of White Cornish and White Rock (short for White Plymouth Rock). Later Starcross 585 (brown egg layer) was also imported and used by PIA-Shaver (Hafeez, 1969). The first consignment of parent stock day-old-chicks arrived from Canada into Pakistan in 1963. But the first grandparent stock (Shaver Starbro) was imported in 1966 into Pakistan. Later four government farms were used by PIA-Shaver to supply its modern hatchery at Karachi airport (Hafeez, 1969). The first commercial hatchery in Pakistan was also established in 1964 by the very PIA-Shaver collaboration (Cook, 1984). It was built at Karachi Airport/Landhi, with the capacity of 60,000 chicks per week (Chishti, 1987). Not only it fulfilled the demand of both East and West Pakistan but also started supplying chicks to Afghanistan, Kuwait, Bahrain, Saudi Arabia, and Nepal (Hafeez, 1968).



Figure 1. Chicken strains [Starbro left and Stracross right] initially introduced by Shaver in Pakistan (Ali, 1975).



Figure 2. Shaver promotion advertisement of Shaver 288 strain published in local newspaper (Ali, 1975).

Arber Acres Pakistan Limited

Soon after PIA-Shaver, two other companies also started producing chicks at their own newly developed hatcheries e.g., Arber Acres Pakistan Pvt. Ltd., Karachi, and Packages Limited Poultry Division, Lahore (owned by Packages Limited) (Hafeez, 1971). Muhammad Afzal Khan, a former naval commander became the head of Arber Acres Pakistan Ltd at that time (Irwin, 2010). To expand its enterprise, Arber Acres took a loan of 875,000 rupees from the US Department of the Treasury (UST), US government, on 25 November 1964 at the interest rate of 6.5% (UST, 1970) and established a hatchery in Karachi, in the next year (1965) (Cook, 1984). The hatchery had 350,000 chicks per annum capacity (Brecher and Abbas, 1972). This operation was later expanded to Lahore as well (Cook, 1984). In this way, Arber Acres became one of the pioneers in the hatchery business in the commercial poultry industry. To further strengthen poultry farming, Arber Acres Pakistan actually devised a complete plan to flourish small scale poultry farming in Pakistan. They provided poultry farmers with 100-500 chicks from its hatchery at Lahore, seed to grow corn for feed, low-cost chicken houses, feeding and drinking equipment and farm training. More importantly, Arber Acres provided a guarantee to buy mature chickens after 8 weeks. In return, farmers would pay back Arber Acres Pakistan from their earnings over a period of 3 years. In this way, more than 300 Pakistani farmers participated in that program (GOUS, 1974). It is interesting to note that the cost of production in 1960s-1970s was 4 to 4.25 rupees per pound of broiler (Ali, 1975). And it is 300 rupees per kg as of 2024.

INSTITUTIONAL ROLE IN THE DEVELOPMENT OF PAK'S POULTRY

Since independence, British era's institutions have played a vital role in the development of poultry industry by providing the crucial technical human resource. To fulfill this responsibility, there were 8 agriculture and veterinary institutes working after independence in whole of the country as follows (GOP, 1952): Punjab Veterinary College, Lahore; East Bengal Agriculture Institute, Dacca; Veterinary College, East Bengal, Dacca; Pakistan Animal Husbandry Research Institute, Peshawar and Comilla; Punjab Agricultural College and Research Station, Layllpur Agricultural Experimental Station, Turnab; Pakistan Animal Husbandry Research Institute, Abbotabad; King George V Institute of Agriculture and Agricultural Research Station, Sarkand.

However, there were only two veterinary colleges in Pakistan at the time: Punjab Veterinary College Lahore (West Pakistan), used to award Bachelor of Veterinary Science (BVSc) degree, and East Pakistan Veterinary College, Comilla (also known at that time as 'Veterinary College East Bengal'), which later shifted to Dacca (GOP, 1949, 1950, 1952). These institutions no doubt have produced several brilliant minds who still power the poultry industry. The significance of these veterinary institutions can be further noted from the veterinary graduates they had produced and are producing today.

Punjab Veterinary College Lahore

Punjab Veterinary College was established as 'Lahore Veterinary School' in 1882 and owes its inception to Colonel Hallen; however, Colonel Kettlewell was appointed its first Principal in 1882 (who served till 1890) (Frederick, 1916). Later it was upgraded to Punjab Veterinary College, Lahore, which was officially inaugurated in December 1915, by His Excellency Lord Harding. Colonel Henry Thomas Pease was The Principal of the college at time (Frederick, 1916; Brown, 1916; Frederick *et al.* 1906). The total cost of acquiring the building and the site was 6,71,000 rupees (Frederick, 1916). The school was opened in a bungalow in Anarkali, Lahore (Frederick, 1916; GOI, 1911) and was consisted of 32 acres of land, main building was housed on 22 acres land and 10 acres of adjoining land was allocated for accommodation of 200 residing students (as hostels). 'Hallen Block', which is still present, was the main building. It consisted of Principle Office (now house the Vice Chancellor secretariate), clerks' room, record room, museum, library and 2 lecture rooms (lecture theaters), common room, professors' room and postgraduate rooms. The college also housed a separate

Anatomical room consisting of separate sections i.e., lecture room, examination room, dissection room etc. Kettlewell Clinical Block (renamed as Outdoor in current university) was being used for the outdoor clinic. The Dog Hospital (within college premises) was a separate block (Frederick, 1916). Initially, it used to offer a 2-year veterinary course which was later changed to a 3-year course in 1900. The popularity of the college was so much significant that 134 participants (all men) took part in entrance examination of college and only 63 were admitted, Muslims (to be known as Muhammadans at that time) were 63% among admitted students. Out of these 63, 55 students passed the final year examination (Henry, 1900).

The college introduced a 4-year degree program after matriculation (Jones and Koolmees, 2022; Sharma, 1987). However, the 3-year degree used to offer 18 courses (Table 1) in 1900 (Frederick, 1916):

The college was later known as Animal Husbandry College Lahore (Gill and Chrisler, 1973) and upgraded its degree to BVSc under the banner of Punjab University, Lahore (as it was affiliated with Punjab University at that time) (GOP, 1950). It was upgraded to full-fledged university in 2002 by an Ordinance to 'University of Veterinary and Animal Sciences (UVAS), Lahore' currently operating as federal institution under Higher Education Commission of Pakistan.

Although UVAS graduates have participated in the poultry industry since its inception, the need for a separate department was raised, and Poultry Production came into being in 2003. The department has produced 87 MPhil and 22 PhDs as of 19 February 2024, which are helping both the industry and government institutions with their technical and scientific expertise (UVAS, 2024).

Table 1. Courses offered during 3-year program in Punjab Veterinary College in 1900.

Sr. No.	Course
First Year	
I.	Anatomy, up to Arthrology
II.	Elementary Physiology
III.	Elementary Botany
IV.	Elementary Chemistry
V.	Materia Medica and Pharmacy
VI.	Handling of Animals
Second Year	
I.	Anatomy, the whole
II.	Theoretical Equine Medicine and Surgery
III.	Theoretical Bovine Medicine and Surgery
IV.	Therapeutics including Toxicology.
V.	Theoretical Principles of Shoeing
Third Year	
I.	Practical Equine Medicine and Surgery
II.	Practical Bovine Medicine and Surgery

- III. Operative Surgery
- IV. Obstetrics, including the general principles of breeding and rearing.
- V. Hygiene limited to general principles as applied to India.
- VI. Soundness of horses and aging of domesticated animals, including the detection of lameness.
- VII. Veterinary law limited to Indian Acts having reference to animals.

East Pakistan Veterinary College Comilla

This institute was established in November 1947 as 'Veterinary College Comilla', East Pakistan. It offered only the 'Diploma in Veterinary Medicine and Surgery' known as DVMS (GOP, 1949). It was affiliated with Peshawar University but after shifting to Dacca in 1950, it was affiliated with Dacca University under the name of 'College of Animal Husbandry and Veterinary Science, Mymensingh' (GOP, 1968). It used to offer a 3-year course study (Mackie and Dunn, 1954); however, in 1951, it started a 5-year 'Bachelor of Animal husbandry' (BScAH) degree program under the banner of Dacca University (GOP, 1960).

The famous market of Daulatganj in district Comilla was the center of poultry market and egg export to Rangoon (Burma) as well (Schmidt, 1963). Veterinary College Comilla along with Punjab Veterinary College Lahore used to produce 50 veterinary graduates annually in the early 1950s (GOP, 1949). It was upgraded by ordinance in 1961 (the same year when Lyallpur Agriculture College was upgraded to university by an ordinance) to East Pakistan Agriculture University, currently known as Bangladesh Agriculture University (GOP, 1961a). Currently, this institute is symbol of excellence in present day Bangladesh.

Agriculture College and Research Institute, Lyallpur

It was also known as 'Agriculture College Lyallpur' and was India's first agricultural institute (Fahad *et al.*, 2023) which was established on 9th January 1906, when the administration sanction of the buildings i.e., college, professors' residence, pavements, farm structures etc., of 4 lacs were received with Under Secretary to the Government of Punjab, India (Kettlewell *et al.*, 1907). Mr. Dobbs was its principal at that time (Ali and Salam, 2005). It was elevated to the level of university as 'West Pakistan Agriculture University', Lyallpur (WPAU) in 1961. It was later named University of Agriculture Faisalabad (UAF) in 1973. The most famous and cited example of WPAU participation in the progress of poultry industry is the development of a chicken breed: Lyallpur Silver Black (WPAU, 1972).

Lyallpur Silver Black (LSB) was introduced by the Department of Poultry Husbandry at West Pakistan Agriculture College

Lyallpur (Lyallpur name for breed taken from place of city). It was developed by Dr. Muhammad Yaqoob Bhatti (Yaqoob, 1970; Khawaja *et al.*, 2012), in the year 1961 (Hafeez, 1973), by crossing the native Desi breed with three imported breeds namely White Leghorn, White Cornish and New Hampshire in a two-way cross breeding program. So that the hybrid breed could survive under the harsh environmental conditions of rural areas (Hussain *et al.*, 2015). Furthermore, LSB was able to produce 150 eggs per cycle as compared to 73 eggs of local breeds at that time (Israr and Masud, 1966; WPAU, 1972). Dr. Bhatti was a veterinarian and civil servant from West Pakistan (Bhatti, 1996). He did his PhD in 1967 from the same institution WPAU where he developed the breed. He became the first chairman of Poultry Husbandry Department at the very university in 1961 when WPAU was established. He joined WPAU on deputation before his PhD (Younas, 2019).

As of today, this institution stands as top most in veterinary ranking in Pakistan.

Agriculture Research Station, Sakrand

It was established in 1926 and later upgraded to King George V Institute of Agriculture in 1939-40 (Anonymous, 2023). It was finally shifted to Tando Jam, district Hyderabad (Sindh) in 1954-55 and renamed to College of Agriculture Tando Jam, Hyderabad (Anonymous, 2022; GOP, 1952). It was offering Bachelor of Science (Agriculture) at that time under the affiliation of University of Sindh (Mackie and Dunn, 1954). This college was later upgraded to Sindh Agriculture University, Tando Jam as an independent institution in 1977 and has a separate faculty of veterinary and animal husbandry (Anonymous, 2022). Under this faculty, it has a separate faculty of 'poultry husbandry' and producing professional for the industry. This faculty has now started doctoral program for poultry husbandry and is participating in the development of poultry industry in Pakistan.

RESEARCH INSTITUTES

Animal Husbandry Research Institutes

In the year 1952, out of 9 agricultural institutes, 2 research institute specifically for animal research were present in Pakistan: 'Pakistan Animal Husbandry Research Institute, Abbottabad' (West Pak) and 'Pakistan Animal Husbandry Research Institute Peshawar' (West Pak) with its regional substation at Comilla (East Pak) (Mackie and Dunn, 1954; Reed, 1951).

Pakistan Animal Husbandry Research Institute (PAHRI) Peshawar was established in 1949. Later, it was renamed 'Veterinary Research Institute, Peshawar'. The purpose of this institute was to work on livestock diseases including

poultry and control these diseases through using diagnostics and biologic laboratory. Its aim was to export the vaccine and diagnostic products to other countries as well. (Anonymous, 2020). In the year 1949, it had produced 400,000 doses of vaccines and diagnostics to be used not only within Pakistan but for the export to Middle East (Reed, 1951; GOP, 1949). PAHRI Peshawar was the first institute in Pakistan to detect and diagnose a highly virulent strain of salmonella in backyard poultry. Its activities had helped several veterinary cases not only within but outside of the province. After its significant efforts in building strong diagnostics in veterinary field, the government decided to expand its scope to other provinces too and established its sub-station at Quetta as well (Reed, 1951). As of 2024, it has a separate department as 'Center of Parasitology and Poultry' for the aid of poultry industry at provincial level.

Poultry Research Institutes, Board and Associations

Pakistan Poultry Association (PPA) was officially created in 1948 for the improvement in industry practices and was responsible for all poultry related activities. However, it was a non-official (private) and not well-developed body at that time (GOP, 1949). With head office in Karachi, Dr. Nurul Islam was its founding secretary-treasurer (Islam, 1948) who later became Professor at Dacca University after independence of Bangladesh. He was a PhD from Harvard University, a Bengali by origin (from East Pakistan) (Sobhan, 2023). The main purpose of PPA was to assist poultry farmers in acquiring land for building sheds (Reed, 1951). In addition, PPA used to publish the 'Journal' solely for the poultry audience. The first volume of this was issued in the same year 1948, in which poultry situation at country level has been comprehensively described (PPA, 1948). The current PPA was established on 15th September 1979 with the main office in Islamabad and two sub offices at Karachi and Lahore (PPA, 2021). Khalil A. Sattar, a renowned poultry businessman, became its first chairman during the period 1979-1981 (PPA, 2018).

To further assist the poultry industry, two poultry research institutes (PRI) were established in 1978 in Karachi and Rawalpindi with the assistance from UNDP/FAO funds to provide research services to poultry farmers. PRI Rawalpindi is the responsible institution within jurisdiction of province Punjab to enforce the legislative rules and regulations i.e., Punjab Poultry Production Act, 2016; Punjab Poultry Production Rules 2017; The Punjab Animals Feedstuff & Compound Feed Act, 2016; The Punjab Animals Feedstuff & Compound Feed Rules 2017. In addition, it conducts poultry research activities to as per industry requirements (Anonymous, 2019). Similarly, PRI Karachi works under the livestock directorate of province Sindh and work on similar activities in Sindh.

Soon after the establishment of PRI, 'Federal Poultry Board' was established in 1979 (Hussain *et al.*, 2015). It was formed as a national coordinating body to link govt and industrial activities (GOUS, 1987). But it was later dismantled.

CONCLUSION

Since independence, Pakistan Government was paved the way for commercial poultry industry. Later Lever Brothers, PIA-Shaver, Arber Acres and Packages Limited joined the ladder of progress and played their part. The much-needed human resources were provided by the British Era's institutions, most of which are still the centers of excellence in Pakistan although the names have been changed. In general, the pioneer role in Pakistan's poultry industry was the 1948 scheme of government which resulted in the establishment of poultry farms in different cities. The only private investor which took initiative individually was Lever Brothers followed by Canada's Messers Shaver.

CONFLICT OF INTEREST

The authors declare that there were no known competing interests of any kind.

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