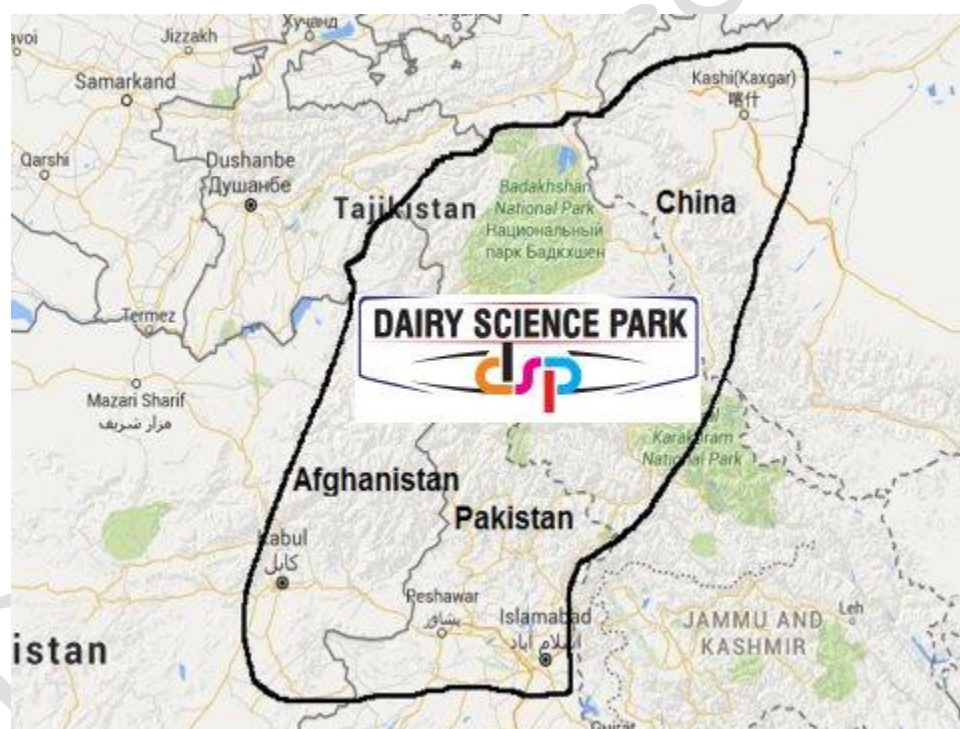




Dairy Science Park

Society Profile - July 2016



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Dairy Science Park

A society registered under Societies' Registration Act XXI of 1860 (Reg No.4582/5/8589 dated 2-7-2015) by Registrar Joint Stock Companies and Societies, Government of Khyber Pakhtunkhwa, Peshawar, Pakistan and accepted by the United Nations as #SDGAction9671

VISION

To support the people of Khyber Pakhtunkhwa, Federally Administered Tribal Areas and Northern Areas of Pakistan and the adjoining regions in Afghanistan, Tajikistan, and China, through self-employment for youth and hygienic food production for the people and export

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**Recommendation letter of Ex-Chief Minister Govt of KP/
Federal Minister for Housing & Works, Govt of Pakistan**



I am pleased to get an update on Dairy Science Park, presented to me as Livestock Development Plan during my tenure as Chief Minister Khyber Pakhtunkhwa. The concept is commendable as it focuses on self-reliance through utilization of the livestock resources of the region and developing the export potential of these resources. The proposal has been updated to Dairy Science Park extending its activities to other organizations and linking the region with developments at ten countries, especially USA and China, in addition to the Pakistan Army.

The concept of the University of Veterinary Innovations and Commercialization is novel in the sense that it will work on the local livestock resources and human resource development under an Endowment Fund to develop and replicate self-employment models and establish a network of meat production farms of different livestock, poultry and other species. Reducing production cost through scientific research, introducing quality control models and certification of farms, processing factories and marketing facilities would hopefully prepare the region for Halal meat export.

The people of Khyber Pakhtunkhwa and FATA have been poor but they are honest and hard working and possess natural resources, especially livestock and poultry. The region may get a stable peace through promotion of self-employment and hygienic food production as envisioned under Dairy Science Park in partnership with the local and international agencies, especially Sustainable Development Agenda of the United Nations.

The present Government has been working hard to extend development support to all regions, especially for rehabilitation of Khyber Pakhtunkhwa and FATA and would continue to support the initiatives launched by Dairy Science Park with the cooperation of national and international agencies, in larger interest of the people.

(Akram Khan Durrani)



Recommendation letter of the Senior Minister Govt of KP

I was pleased to work with the Dairy Science Park since the last several years. The Society has emerged at the University of Agriculture, Peshawar and has abridged the gap between the government and academia in policy development and bringing reforms in the Society in line with the vision of the present government.

The concept of the Dairy Science Park is appreciated; supporting the producers and consumers of livestock products, value addition, self-employment to the youth and hygienic food production. An ongoing project of Rs.200 million is being supported under annual development program, for establishment of Slaughter Houses. Peshawar Development Authority is implementing the project and the Dairy Science Park team is assisting them in ensuring quality standards, supporting the supply line, marketing linkages, and human resource development. The provincial government has agreed on preparation of an Act for establishing an autonomous Dairy Science Park Board.

DSP activities are in line with the Integrated Development Strategy KP, 2014-2018 regarding sustainable and effective local government system, improved citizens' participation, industrial development for economic growth, and job creation. DSP vision also covers the Federal Government's Pakistan Vision 2025 calling for Private Sector-Led Growth and Entrepreneurship.

I am thankful to the United Nations for accepting DSP to implement sustainable development action #SDGAction9671. The provincial government would extend all possible support to achieve the goals set for bringing peace and prosperity in the Region comprising KP, FATA, and Northern Areas of Pakistan and the adjoining areas of Afghanistan, Tajikistan, and China.

The development and private sector organizations within the country and abroad, are invited to participate in this sacred mission and collaborate in launching novel initiatives like alternate energy solutions, environment protection, biorisk management, entrepreneurship development, legislative and policy support, quality control, and Halal certification in the food value chain.

(Inayatullah Khan)



**Note by the Chairman Higher Education Commission
Government of Pakistan, Islamabad**

I am pleased to comment on the performance and future vision of Dairy Science Park, a scientific society originating at the University of Agriculture, Peshawar, to strengthen the linkages between the academia and the industry.

Consistency of DSP in arranging a biennial series of International Workshops on Dairy Science Park is commendable. Three workshops were held during November 2011, 2013, and 2015 and more will be hopefully held with the same interval. Each workshop was attended by 500+ participants, spread over three days, with Higher Education Commission as the major sponsor. The industrial exhibitions attracted participation of manufacturers, marketing companies, government, NGOs, and private sector organizations. Such events prove fruitful in motivating the students and faculty members to enhance their skills and gain confidence through interaction with senior scientists and leaders of the society. I am thankful to the provincial Senior Minister, relevant ministers, and senior executives of the KP Chamber of Commerce and Industries and SMEDA for providing patronage to these events. Mr Nasir Shah, Director QAA, HEC, represented HEC in these workshops and has been supporting other activities of DSP, for which I am thankful to him.

I appreciate the achievements made under DSP in addressing issues of the society and incorporation of needs of the farming community and the industry into the postgraduate programs. DSP has got international exposure, like the recent consultative meetings of DSP members with Sandia National Laboratories, USA at Amsterdam and Dubai on Biorisk Management. We would like to incorporate such concepts into various curricula in biological, health, and environmental sciences at national level. Collaboration of DSP with Chinese Academy of Agricultural Sciences and the proposal to establish DSP Board and University of Veterinary Innovations and Commercialization will hopefully help in generating self-employment, exportable surpluses, and stability in the region.

(Prof Dr Mukhtar Ahmed)



Foreword by the Chief Patron DSP/Dean FAHVS, UAP

I remember my first consultation with Mr Abdul Rahman Ilyas during 2010 in Egypt, who suggested the name Dairy Science Park to be given for our struggle to utilize the livestock resources of the region for prosperity of the people. Interest of Sardar Mehtab Ahmad Khan Abbasi, Governor KP, during his tenure-ship as Chief Minister during 1998 motivated me to continue my struggle.

Various provincial dignitaries supported this sacred mission and Mr Inayatullah Khan took the message very seriously and pursued it through release of ADP funds and support of an autonomous DSP Board. He was especially comfortable with the idea of self-accountability through an Endowment Fund, needing no operational fund. Mr Akram Khan Durrani has supported the mission as Ex-Chief Minister KP and Federal Minister for Housing and Works, Government of Pakistan. The Chairman HEC, Prof Mukhtar Ahmad has been very kind in supporting DSP as Center of Excellence.

I am thankful to my faculty members, students, staff and the University Administration, for their constant support. Especially my children and wife had to bear the tremendous stress and financial burden during the execution process. I consider it as a sacred mission and present it as a gift before the people of the Region, especially those hit with poverty, illiteracy, and food insecurity.

I envision KP, FATA, and Northern Areas of Pakistan, and the adjoining regions of Afghanistan, Tajikistan, and China as a hub of livestock and poultry entrepreneurs backed up by quality control, R&D, and marketing support organizations, with prosperous people desired under 2030-Agenda for sustainable development of the United Nations.

(Prof M Subhan Qureshi)

Sector issues and impact

Pakistan's Khyber Pakhtunkhwa and Federally Administered Tribal Areas (FATA) have been the sites of international conflicts. The region is mostly mountainous and arid, rich in natural resources, predominantly livestock like sheep, goats, cattle, buffaloes, and poultry. The total value of livestock heads is Rs.1.09 trillion (US \$10 billion). However, the huge resource base can neither provide good economic return to the producers, nor quality food to the consumers. These holdings threaten public health safety. The main reasons behinds this state of affairs are poor socio-economic status of the farmers, lack of resources and focus on part of the state institutions, and a hostile marketing system. The sector issues may be summarized as:

- Poor practices at farmers' and industry level and limited scope of education system create hurdles in food safety and entrepreneurship
- Slaughter houses/poultry butchers delivering meat contaminated with dung, flies, cats and dogs create threats to public health
- Rising level of unemployment and underutilized/unskilled labor at farms, factories and marketing networks
- Price capping of livestock products restricts industrialization
- Utilization of medium sized farms for entrepreneurship, technical, financial, marketing and regulatory support to these units is not included in the Mandate of any government or other agencies
- Private companies selling meat/milk items of unknown quality and Halal status, at inappropriate rates
- Input suppliers are grabbing the major share of farmers' produce and deliver low quality inputs
- Live birds/livestock transportation and marketing in open places and vehicles contaminate the environment and present a dirty picture of the Region and the Muslims
- Marketing dead/diseases animals/birds and their food products with no check on Halal/hygienic status
- Halal bones are exported at throw away prices and Haram gelatin is imported at very high rates
- Legal courts ban import of useful products and export of economically viable products

Academic strengths

Faculty of Animal Husbandry and Veterinary Science is an important component of the University of Agriculture, Peshawar, supporting the livestock sector through teaching, research and industrial services. DVM degree program has been in place since 2004, before which the degree of BSc (Hons) Animal Husbandry degree was awarded. DVM is a composite degree covering animal production and health disciplines and has adopted the standard curriculum approved, monitored and accredited by the Pakistan Veterinary Medical Council and the Higher Education Commission. Postgraduate programs are offered in Livestock Management, Animal Nutrition, Animal Breeding and Genetics, Theriogenology,

Pathology and Poultry Science, qualifying the candidates for award of MSc (Hons)/M Phil and PhD degrees. The Faculty is also helping the university administration in supervision and coordination of academic and allied activities.

The teaching and research at the Faculty is being supported by facilities like University Dairy Farm, Poultry production setup, Veterinary, Reproduction and Surgery Clinics, a Semen Production Unit, a Feed Mill and Dairy Technology Center. The already existing dairy herd of Dutch Hosltein Friesian, two more were added comprising a herd of Australian Friesian and another of Australian Jersey. One broiler and one quail unit are also maintained and the products are provided to the campus residents on payment. Dairy cattle, sheep, goats, broilers and quails flocks are maintained for research and production at the Farms Block. A well-equipped hatchery is available producing day old chicks for research and production purposes. Sufficient land is available for forage research at the farm center. The faculty has linked with the research and development stations in the province.

Laboratories setup is available in various disciplines of animal health and production sciences. Microbiological, parasitological, pharmacological and physiological facilities are available at the Academic, farm and clinical blocks. Spectrophotometry, ELISA, hematology, serology, FT-NIR and other essential facilities are shared by various groups in the faculty and are also made accessible to the sister organizations on request. PCR, gas chromatography and other advanced techniques, available in IBGE, PCSIR and Peshawar University are utilized by postgraduate students.

Industrial linkages

The Faculty of Animal Husbandry and Veterinary Sciences consider the Khyber Pakhtunkhwa province as a natural resource base, possessing livestock and poultry resources with an estimated value of Rs.1.09 trillion. Meat is an important products and its proper management can overcome the protein deficiency of the nation and produce surpluses for export, not less than US 2.00 billion.

An organized effort has been made at the Faculty under the Dairy Science Park to utilize the livestock resources with optimum efficiency with a focus on industrialization. A biennial series of international workshops has been in progress on Dairy Science Park; successfully holding conferences during 2011, 2013 and 2015. . Each workshop was attended by 450+ participants, from academia, government and private sector organizations.

Under the DSP the laboratory setup at the Animal health Department is being utilized for investigating disease problems in the medium sized livestock and poultry herds/flocks. The Poultry Science Department has introduced new concepts in postgraduate research like maggot meal, silk worm meal, meal worm, omega-3 enriched eggs, iron and zinc enriched eggs, quality control through drug-residues, aflatoxin levels, antibiotic resistance, herbal probiotics as growth promoters, improvement meat quality through dietary antioxidants supplementations, stress management through antioxidants, semen evaluation, breeding through artificial insemination, introduction and evaluation of rabbits for meat production.

The sheep, goats, poultry, dairy and beef animals are being studied for their productivity, products quality and business potential. Carcass yield and quality. Processing of meat, palatability and consumers' preferences are documented. The local livestock and poultry breeds are investigated for productivity and business incubation. Commercial farmers are provided technical services and good practices are introduced. The University Cattle Feed Mill has been run under a lease arrangement with a private partner. It has provided a gateway to the University System for applied research and an effective outreach setup for the medium-sized commercial livestock farmers. The Faculty members and postgraduate students have been utilizing these facilities for applied research and getting feedback from the farmers utilizing these products.

Birth of Dairy Science Park

The Dairy Science Park has been utilized as a platform to coordinate the activities mentioned under industrial linkages mentioned above. It has emerged at the University of Agriculture, Peshawar, engaging the youth in productive economic activities. Medium-sized units are being networked with services providers, markets, and emerging entrepreneurs. The United Nations has accepted Dairy Science Park as partner for implementing Sustainable Development Goals, notified at: <https://sustainabledevelopment.un.org/partnership/?p=9671>. Chronological developments under the Dairy Science Park are as follows:

Livestock Development Plan was prepared on advice of the Ex-Chief Minister Sardar Mahtab Ahmad Khan Abbasi, for productive utilization of provincial livestock resources targeted at export. The Plan was updated to Dairy Science Park through three successive international workshops during November 2011, 2013 and 2015 at the University of Agriculture Peshawar. The President Khyber Pakhtunkhwa Chamber of Commerce and Industries (KPCCI), Mr Zahidullah Shinwari approved the Standing Committee on Livestock for integrating various stakeholders. The Minister for Agriculture, Sardar Ikramullah Gandapur inaugurated Livestock Business Facilitation Desk at KPCCI.

The Special Assistant to Chief Minister on Law, Mr Arif Yousaf supported legislative reforms to protect interest of the stakeholders during the process of industrialization. He commended acceptance of the Park by the United Nations for two sustainable goals of self-employment for the youth and hygienic food production for the people of KP and FATA. The Special Assistant to Chief Minister on Livestock, Mr Mohibullah Khan supported the plan for preparing the province for International Halal Meat Market.

The DS Park has been registered under Societies' Registration Act XXI of 1860 to facilitate entrepreneurship development for young graduates and provide market linkages for the local livestock and poultry production system. A collaboration was initiated with Khyber Institute of Veterinary Sciences, Peshawar for collaboration in livestock entrepreneurship development (LED). A collaborative arrangement was agreed with CEBG, Pakistan Army for utilizing the semen and embryos from elite dairy and beef ruminants at the medium-sized farms in the province and FATA. A collaboration on "Biorisk Management" is in process with the Sandia National Laboratories USA. A four-member delegation of the Park visited the Netherlands in March 2015 for launching the initiative and a 12-member delegation is

visiting Dubai shortly to develop Pakistan Biorisk Curriculum for Universities in the Pakistan and the Region. A letter of intent was signed with the Chinese Academy of Agricultural Sciences for collaborative research on development and trade of Halal products. Focal Points have been appointed for the Park for Australia, China, India, Pakistan, Afghanistan, Turkey, Netherlands, USA and Canada.

Emerging industries in milk and meat processing and marketing have been provided technical and Quality Control certification support to relieve threats from the District Administration. Several companies have been established in the private sector and 1000 unemployed veterinary graduates are being facilitated to establish entrepreneurs. The Senior Minister for Local Government and Rural Development, Mr Inayatullah Khan has allocated Rs.200 million for establishing a model slaughter house in consultation with the Park and has directed for establishment of Dairy Science Park Board to implement the idea in collaboration Peshawar Development Authority.

Chronological developments

1. Livestock Development Plan was prepared on advice of the Ex-Chief Minister/present Governor Khyber Pakhtunkhwa, Sardar Mahtab Ahmad Khan Abbasi, communicated vide letter dated 30th November, 1998, for productive utilization of provincial livestock resources targeted at export.

2. The Plan was updated to Dairy Science Park through three successive international workshops during 2011, 2013 and 2015 at the University of Agriculture Peshawar.

3. The President Khyber Pakhtunkhwa Chamber of Commerce and Industries (KPCCI), Mr Zahidullah Shinwari approved the Standing Committee on Livestock for integrating various stakeholders.

4. The Minister for Agriculture, Sardar Ikramullah Gandapur inaugurated Livestock Business Facilitation Desk at KPCCI.

5. The Special Assistant to Chief Minister on Law, Mr Arif Yousaf supported legislative reforms to protect interest of the stakeholders during the process of industrialization. He commended acceptance of the Park by the United Nations for two sustainable goals of self-employment for the youth and hygienic food production for the people of KP and FATA. He advised for perusal of the SDGs at the Cell established at the Provincial Assembly of Khyber Pakhtunkhwa.

6. The Special Assistant to Chief Minister on Livestock, Mr Mohibullah Khan supported the plan for preparing the province for International Halal Meat Market and advised for development of a policy to address the current challenges.

7. The DSP head office/Display Center has been established at the City Towers, University Road Peshawar and the Park has been registered under Societies' Registration

Act XXI of 1860 to facilitate entrepreneurship development for young graduates and provide market linkages for the local livestock and poultry production system. An MoU was signed with the Khyber Institute of Veterinary Sciences, Peshawar for collaboration in livestock entrepreneurship development (LED).

8. A collaborative arrangement was agreed with CEBG, Pakistan Army for utilizing the semen and embryos from elite dairy and beef ruminants at the medium sized farms in the province and FATA.

9. A collaboration on “Biorisk Management” is with process with the Sandia National Laboratories USA. A four-members delegation of the Park visited the Netherlands in March 2015 for launching the initiative and a 9-members delegation visited Dubai during May 2016 to develop Pakistan Biorisk Curriculum for Universities in the Pakistan and the Region.

10. A letter of intent was signed with the Chinese Academy of Agricultural Sciences for collaborative research on development and trade of Halal products.

11. Focal Points have been appointed for the Park for Australia, China, India, Pakistan, Afghanistan, Middle East, Turkey, Netherlands, USA and Canada.

12. The Governor Khyber Pakhtunkhwa has appreciated the mission and placed the Dairy Science Park on his official profile at FATA-DA <http://fatada.gov.pk/about-us/governers-profile/>.

13. The Senior Minister for Local Government and Rural Development, Mr Inayatullah Khan has allocated Rs.200 million for establishing a model slaughter house in consultation with the Park.

14. The Senior Minister urged upon efficient utilization of the natural resource available in the Khyber Pakhtunkhwa province for the welfare of the people. The gap between the policy makers, academia and industry was highlighted. The Dairy Science Park (DSP) was declared as a platform to bridge up this gap. The Senior Minister advised that the amount of Rs 200 million released by the Local Government, Election and Rural Development Department KP for the establishment of Slaughter house at Peshawar may be utilized in appropriate consultation with the DSP experts.

15. The Senior Minister advised that an autonomous DSP Authority may be established under the supervision eminent academicians, and representatives of the Government, industry, farmers and civil society, focused at the burning issues of self-employment and hygienic food production. The Authority will provide an infrastructure for Business Incubation Centre (Rs.250 million) to promote industrial research under an Endowment Fund (Rs.250 million). This is line with the HEC vision of “facilitating higher educational institutions to develop entrepreneurship capacities and mindsets of youth”. Follow up meeting will be held to process the case.

ACHIEVEMENTS

Biennial International Workshop Series

The first International Workshop on Dairy Science Park was held on November 21-23, 2011 at the Agricultural University Peshawar. Cooperation was provided by the Extension and Research wings of the Livestock and Dairy Development, Pakistan Veterinary Medical Association and Livestock Trainers and Consultants as organizing partners. HEC assisted as the main sponsor, followed by financial assistance of Alltech Pakistan Ltd, Ghazi Brothers, Karachi; Inter-cooperation (IC) Pakistan, Peshawar. ICI Pakistan and Naseem Traders/Romer Lab Rawalpindi also displayed their products through stalls. Technical support was provided by ICRISAT India, SMEDA Peshawar, KPCCI, Charles Sturt University, NSW, Australia and Agri Livestock Bureau, Faisalabad. Website coverage was provided by AU Peshawar, Engormix.com, World Veterinary Year, 2011; World Vet Association; Int Soc Zool Sci; IBKRC Philippines; The Dairy Site News; Khyber Pakhtunkhwa Official Gateway News and Events. pakissan.com. Press coverage was provided by Daily Mashriq, Daily Aaj; Daily Pakistan Observer; The Frontier Post; Business Recorder; Associated Press of Pakistan; The Weekly Technology Times, Pakistan.

The conference was attended by +450 delegates from all four provinces of the country and Azad Jammu and Kashmir belonging to a variety of segments of the society. During the three days of the workshop, experts from academia, research, extension and industry, policy makers and farmers community presented 35 papers and exchanged ideas to work out a comprehensive plan for the development of dairy industry of the province. The workshop was inaugurated by the Honorable Minister for Agriculture, Arbab Muhammad Ayub Jan and concluded by Haji Hidayatullah Khan, Minister for Livestock. Ninety one Abstracts and 13 titles were published in an abstract book, ISBN-978-969-422-001-7. Another volume of the book was published covering recommendations, daily proceedings and pictorials. Fifty selected papers were published as a special supplement of the Journal of Animals and Plants Sciences. A committee shaped up the recommendations into various components including Business Support, Infrastructural Support, Legislative And Policy Support, Animal Production Support, Animal Health Support, Environment And Energy Solutions, Institutional Strengthening and Coordination.

The Second International Workshop on Dairy Science Park was organized in 2013, Nov 18-20, focusing on developing enterprising capacity of livestock and poultry farmers of Pak-Afghan Region for meat production. The Conference was attended by 500+ members. The Higher Education Commission was the main sponsor supplemented by other sister and development agencies and private companies. Papers were presented by during 9 sessions by speakers from various parts of the country, 6 faculty members for Kabul and Nangarhar University Afghanistan and Dr Mithat Direk from Selcuk University, Turkey. 200 abstracts were published in the proceeding book with ISSN number. A recommendation committee has compiled their findings and are being shared for implementation by various relevant stakeholders, mainly focused on business

incubation and development of the required infrastructure and services. A roadmap for implementation of the Park as a Business Incubation Center is under consideration by the HEC for sponsorship.

The Third International Workshop on Dairy Science Park was organized on Nov 16-18, 2015, focusing on support to the war-hit economy of Khyber Pakhtunkhwa through self-employment and hygienic food production for local consumers and international Halal Meat Market. The Senior Minister Mr. Inayatullah Khan inaugurated the Workshop, participated by academic, government and industry leaders, policy makers and farmers, from all four province of the country, Azad Jammu and Kashmir, Afghanistan and Turkey. Mr Mohibullah Khan Special Assistant to Chief Minister on Livestock, Mr Arif Yousaf Special Assistant to Chief Minister on Law and Mr Jaffar Shah Member Public Accounts Committee and Arbab Asim Khan District Mayor Peshawar chaired various sessions, accompanied by Deans and institutional head from various organizations. Seven technical sessions were held comprising: i) Livestock Development and Business Incubation; ii) One Health; iii) Feed and Food Safety; iv) Animal Health and Technology; v) Poultry Science and; vi) Prospective Dairy Farming and Dairy Products in Pakistan. MoU's were signed by Dairy Science Park team with Mevlana Exchange Program and Selcuk University Turkey.

The Senior Minister Mr. Inayatullah Khan inaugurated the Third Workshop flanked by Prof Zahoor Ahmad Swati, Vice Chancellor of the University of Agriculture Peshawar and Prof M Subhan Qureshi, Dean FAHVS/Chief Patron DSP. Academic, government and industry leaders, policy makers and farmers, from all four province of the country, Azad Jammu and Kashmir, Afghanistan and Turkey, participated in the event.

The Senior Minister and Vice Chancellor expressed their appreciation that renowned scientists from within the country and abroad attended the event, focused on a burning issue of self-employment and hygienic food production in the region. Prof. M. Subhan Qureshi welcomed all the delegates and thanked them for sparing their valuable time to attend the event. The Dean also thanked the organizers and then presented a brief overview of the DSP.

Prof Qureshi explained the aim of the third conference and mentioned that it is right time to start business incubation on the basis of the ideas that generates in the research Institutions in-order to support the industry and create self-employment. In this regard the production of hygienic meat and milk can play a key role.

The DSP has established collaboration with Sandia National Laboratories to reduce risk to human health from animal industry. Moreover, collaboration has been established with China Academy of Science to promote collaborative research for industrial support and exchange of scholars under the China Pakistan Economic Corridor (CPEC).

Prof. Qureshi proposed a business incubation center costing sum of 250 million for infrastructure in addition to Rs.250 million as a Endowment Fund. He recommended development of quality control standards at farms, clinics, processing and market places. Endowment fund would be utilized for developing/replicating feasibility models and revitalizing the underutilized assets in public and private sectors. The Endowment Fund will support industrial research projects under the Business Incubation Center.

The Vice Chancellor applauded the presence of so many eminent scientists from Pakistan and other brotherly countries which guarantees that many useful idea will be generated and the gap between academia, industry and producers will be bridged up. The worthy Vice Chancellor UAP welcomed and thanked the delegates, especially those coming from Turkey and Afghanistan. He expected that the technical sessions will come up with new ideas will be for the uplift of the livestock industry. He thanks the organizers for successfully arranging such a mega event which has honored the University of Agriculture Peshawar in a big way. The worthy VC also stressed that we have wasted 68 years, and despite of that fact that our homeland has one of the world best natural resources including those of agriculture land and livestock species but we failed to exploit those resources for the betterment of our people. He concluded his speech with the hope that the government will make policy that could enable us to utilize our agriculture resources optimally.

Mr Inayatullah Khan, the Senior Minister/Minister Local Government, Elections and Rural Development endorsed the comments of the worthy VC and Dean that our natural resource could not be utilized so for the uplift of the people, and further said that the province of KP has the potential for generating 30,000 MW of hydal power; 600 million barrels of crude oil; 10 trillion cubic feet of natural gas; and millions of acre of barren land in the Southern districts. In addition, the province can generate a lot of revenue from tourism.

The Senior Minister shared his concern over the failure to exploit the resource base. However, we do not need to spread disappointment and fear in the youth, rather we need to work hard and device policy for utilization of resources by bridging the gap between the policy maker, academia and industry. The Senior Minister declared the Dairy Science Park as the bridge to fill up the gap. The Senior Mister informed the participants that his ministry has allocated a sum of 200 million for the establishment of model slaughter house. He endorsed the idea of establishment of autonomous DSP Board which will be run by immanent scientist, industrialists and farmers' representatives and the board will work as an independent organization.

In his concluding remarks the Senior Minister praised Prof M S Qureshi for his great vision for development of livestock sector and advised for a follow up meeting the establishment of DSP Board, Dairy Science Park Act and streamlining the slaughter house project within two week time. The District Nazim (Mayor), Arbab Asim Khan chaired second technical session on the second day of the three days workshop. He appreciated the theme of the workshop covering self-employment and hygienic food production in the region and desired cooperation under the Park for entrepreneurship of

youth especially the youth in quails farming. He advised the Dairy Science Park organize to develop standard operating procedures for livestock farming, products processing and marketing for application in the field. He desired training of butchers in hygienic meat production and marketing. He also desired training of local government elected representatives to exploit the indigenous resources in an efficient way.

Mr Mohibullah Khan Special Assistant to Chief Minister on Livestock advised for preparation of a livestock policy for the province. He chaired concluding session of the Workshop along with Mr Arif Yousaf Special Assistant to Chief Minister on Law and Mr Jaffar Shah Member Public Accounts Committee. Mr Arif Yousaf highlighted the importance of sustainable development goals (SDGs) and was pleased to know about selection of the Dairy Science Park by the United Nations as a partner for SDGs. He was interested in the Dairy Science Park Act KP and asked the organizers to come up with the draft act for further processing to provide relief to the partners of the Dairy Science Park, creating an enabling environment for investment in the province.

Seven technical sessions were held comprising: i) Livestock Development and Business Incubation; ii) One Health; iii) Feed and Food Safety; iv) Animal Health and Technology; v) Poultry Science and; vi) Prospective Dairy Farming and Dairy Products in Pakistan. The Sessions were chaired by Prof M Sarwawr, Prof Zafar Iqbal, Prof Ahrar Khan and Prof Anas Sarwar from UA Faisalabad, Prof Ashraf from UVAS Lahore, Prof Younas Rana from CVS Jhang, Dr Arfan from PMAS Arid University Rawalpindi, Dr Iqbal Khattak from VRI, Prof M Afzal AUP, and Dr Mithat from Turkey. Delegates from ILRI, L&DD, COMSATS, SMEDA, AJKU, Romer Labs, KMU and AWKUM participated. HEC was represented by Mr Nasir Shah Director QAA.

Dairy Science Park signed a memorandum of understanding with Selçuk University, Konya, Turkey and another with Mevlana Exchange Program, Turkey. The Turkish side was represented by Dr Mithat Direk and Pakistan was represented by Mr Arif Yousaf Special Assistant to the Chief Minister KP (Law) and Prof Dr M Subhan Qureshi, Dean FAHVS, UA Peshawar. President DSP Irfanul Haq Qureshi, CTA Prof Sarzamin Khan, Prof Mansoor Khattak, Dr Asif and Mr Intizar Ali PTI and Mr Zafar Hussain Feed Industry also attended the MoU signing ceremony.

Under the Mevlana Exchange Program, the two organizations agreed on collaboration, covering student and academic staff Exchange to concur with the principles and conditions set forth in Program to provide solutions to the issues highlighted under the Dairy Science Park. The MoU with Selçuk University will support self-employment models and hygienic food production utilizing the livestock resources. Collaborative research will be launched in livestock and poultry production and health for control of diseases and reduction of production cost per unit. Market access will be provided to the products of both the regions.

As suggested by Dr Mithat Direk, the biannual International Workshops on the Dairy Science Park, will be jointly organized in continuation with those held during the

years 2011, 2013, and 2015. The suggested venue for the 2017 conference is Istanbul, Turkey.

Recommendations

1. The Senior Minister urged upon efficient utilization of the natural resource available in the Khyber Pakhtunkhwa province for the welfare of the people. The gap between the policy makers, academia and industry was highlighted. The Dairy Science Park (DSP) was declared as a platform to bridge up this gap. The Senior Minister advised that the amount of Rs 200 million released by the Local Government, Election and Rural Development Department KP for the establishment of Slaughter house at Peshawar may be utilized in appropriate consultation with the DSP experts.
2. The Senior Minister advised that an autonomous DSP board may be established under the supervision eminent academicians, and representatives of the Government, industry, farmers and civil society, focused at the burning issues of self-employment and hygienic food production. The Board will provide an infrastructure for Business Incubation Centre (Rs.250 million) to promote industrial research under an Endowment Fund (Rs.250 million). This is line with the HEC vision of “facilitating higher educational institutions to develop entrepreneurship capacities and mindsets of youth”. Follow up meeting will be held to process the case.
3. The Special Assistant to the Chief Minister (Law) Khyber Pakhtunkhwa appreciated selection of the DS Park for partnership by the United Nations under Sustainable Development Goals for self-employment of the youth and hygienic food production for the people of Khyber Pakhtunkhwa and FATA. He informed that he is chairing the committee on SDGs in the province and would include DSP in the onward consultation process.
4. DS Park signed a memorandum of understanding with Selçuk University, Konya, Turkey and another with Mevlana Exchange Program, Turkey. The Turkish side was represented by Dr Mithat Direk and Pakistan was represented by Mr Arif Yousaf Special Assistant to the Chief Minister Khyber Pakhtunkhwa and Prof Dr M Subhan Qureshi, Dean FAHVS, UA Peshawar. The former MoU will facilitate exchange of staff and students Pakistani and Turkish Universities and the later will facilitate collaborative research and industrialization process in collaboration with Konya Teknokent (Selçuk University, Technopark).
5. MoUs were signed by the Vice Chancellor, The University of Agriculture Peshawar for academic linkages, with the two Turkish organizations.
6. The aim of third international conference was to formalize the business incubation process and the participating experts would be consulted to move forward in this direction.

7. The District Mayor Peshawar advised for initiating an MoU with the DS Park to establish youth entrepreneurship, develop quality standards for livestock farms, processing and marketing channels and train the elected representatives in utilizing natural resources for employment generation and food production. The Mayor appreciated the efforts of the University in development business models like quails production and helping the meat processing and marketing partners in adopting hygienic standards. He advised for developing quality standards and training of commercial farmers, butchers and industry workers to protect the environment and ensure access of the people to hygienic meat, eggs and milk. It will help in development of entrepreneurship for the youth and preparation of the region for Halal food local consumption and export. Research finding of FAHVS and elsewhere, would be utilized for this purpose.
8. The collaboration initiated by DS Park with the Sandia National Laboratory USA, Chinese Academy of Agricultural Sciences, CEBG of Pakistan Army and nine countries through Focal Points was appreciated. These linkages will be utilized for achieving objectives of the DS Park.
9. Livestock Advisor appreciated the efforts of the organizers in conducting such an auspicious conference to discuss the issues of the Livestock Sector. He urged upon an enhanced collaboration among the Directorates General Livestock and Dairy Development Department (Extension and Research Wings), the Faculty of Animal Husbandry and Veterinary Sciences, UA Peshawar and the farming/business community. He urged on development of a livestock policy to respond to the prevailing issues.
10. Dr Mithat Direk offered his support to organize the Fourth International Workshop on Dairy Science Park at Istanbul during November 2017 which was welcomed by the participants with thanks.

Advice to the Governments and KPCCI/SMEDA

Livestock Development Plan was prepared on advice of the Ex-Chief Minister Sardar Mahtab Ahmad Khan Abbasi, for productive utilization of provincial livestock resources targeted at export. The Plan was updated to Dairy Science Park through three successive international workshops during November 2011, 2013 and 2015 at the University of Agriculture Peshawar. The President Khyber Pakhtunkhwa Chamber of Commerce and Industries (KPCCI), Mr Zahidullah Shinwari approved the Standing Committee on Livestock for integrating various stakeholders. The Minister for Agriculture, Sardar Ikramullah Gandapur inaugurated Livestock Business Facilitation Desk at KPCCI/SMEDA.

The Special Assistant to Chief Minister on Law, Mr Arif Yousaf supported legislative reforms presented under the Dairy Science Park, to protect interest of the stakeholders during the process of industrialization. He commended acceptance of the Park by the United Nations for two sustainable goals of self-employment for the youth and hygienic food production for

the people of KP and FATA. The Special Assistant to Chief Minister on Livestock, Mr Mohibullah Khan supported the plan for preparing the province for International Halal Meat Market.

The Senior Minister Khyber Pakhtunkhwa province has acknowledged efforts made under the DSP focused at efficient utilization of the natural resource available in the Khyber Pakhtunkhwa province for the welfare of the people. DSP was declared as a tool to fill the gap between the policy makers, academia and industry. The Senior Minister agreed with establishment of an autonomous DSP board, focused at the burning issues of self-employment and hygienic food production. The Board will provide an infrastructure for Business Incubation Centre to promote industrial research under an Endowment Fund, with a total cost of Rs.500 million).

The Higher Education Commission, Government of Pakistan accepted the Dairy Science Park as a Center of Excellence. Under the proposed project "Center of Excellence on Dairy Science Park" we have suggested conversion of KP and FATA into an export base for Halal Meat and other food products and the HEC has included it in the agenda for Sector Development Program. The Center is supposed to work an autonomous degree awarding institution.

Support to the Industry

Emerging industries in milk and meat processing and marketing have been provided technical and Quality Control certification support to relieve threats from the District Administration. Meat shops are being established in private sector on modern lines of hygiene with a sound level of investment. Such shops have to sell their products at relatively higher prices.

Meat Shop, Jan Shopping Arcade, Peshawar Cantt has been established by Mr Habib Jan as model shop in Peshawar City. His facility was raided by the District Administration with the allegation that he is selling meat at higher prices. The DSP team visited his facility and inspected the quality of animals, slaughtering, processing, packaging and storage facilities. Jan Arcade had maintained quality of meat at their setup through procurement of the best and healthy animals of appropriate age, slaughtered and processed under hygienic and Islamic principles. The meat is graded as per accepted standards. Sufficient investment has been made in maintaining pathogens free environment and chilled storage. The Shop has gained consumers' confidence, attracting elite and quality conscious families across the City. Dairy Science Park has been providing technical Support to the Jan Arcade and ensure quality and Halal standards at their Meat Shop. The Minister Local Government has appreciated their meat quality during a presentation made by the Dairy Science Park and recommended its exemption from the general meat rates.

Farmers' Sausage Company, Industrial Estate, Hayatabad, headed by Mrs Javed, requested the DSP for inspection after they were fined and banned by the District Administration from functioning. The facility has been working since 2003 with family investment; getting not interest-based loans from the financial institutions. High quality

equipment were purchased for the factory and quality control system was introduced. The products prepared at the factory were Baked Meatloafs, Mortadella, Smoked veal, Hunter sausages, Beef salami, Smoked chicken, Chicken pie, Chicken Sausages, Frankfurters, Pepperoni and Paprika. The inspection team were shown facilities by Mr Bahram Khan, comprising premises for handling the incoming meat after arrival, cold room, weighing scale, mincing assembly, mixing and crushing machine, smoking chamber and boiling pots. The experts examined the quality of the facilities, discussed the deficiencies and advised the Company executives on improvement of the same. The Company's executives were educated upon importance of hygienic practices and protocols in line with the national and international standards.

A silage production facility was established by Khanzada Ahmed Kamal at Mardan. USAID Agribusiness Support Program provided him training and the equipment on subsidized rates. This facility has started producing silage on preliminary pilot basis. Maize fodder is being used as the crop for production of silage. ILRI has been sponsoring Mr Nadir Khan, PhD Scholar Animal Nutrition to work on silage production using various maize varieties under local conditions. Romer Lab Rawalpindi has provided inoculums for the experiment. Mr Kamal and another registered farmer in Peshawar have agreed to provide land for the experiment.

Royal Dairies has been established by Mr Kamran Khan, an Animal Husbandry Graduate and General Secretary of Dairy Science Park. Mr Khan has initiated his professional career by establishing a dairy farm; than shifted to milk marketing business where the sellers are compelled by the District Administration to sell milk at subsidized rates, ignoring grading milk on basis of quality. So Mr Khan has to quit the milk marketing venture. Then he established a quails breeding and fancy birds production entrepreneur at Badaber; a suburb of Peshawar City. Facing certain technical problems there, especially quails management during severe winter, and the electricity power failure in the country, Mr Khan established a dairy processing unit in the name of Royal Dairies. He has launched yoghurt and butter and got his products linked with the local superstores in Peshawar City. He has been linked with the Dairy Science Park in policy development, students entrepreneurship and interaction with the Corporate Partners.

DSP Innovations has been established to bring innovations in the existing farming system in the private sector. Silage was purchased from Punjab and introduced at the dairy and calf fattening facilities in Peshawar City. Meat Park was established at Peshawar and silage was introduced at the fattening farm owned by another partner of Meat Park which replaced the wheat straw, reduced production cost and improved the growth rate and health of calves. However, the partnership could not continue due to delayed/non-payment to the two investing partners in feed and silage. To support the calf fattening facility, a DSP Clinic and Marketing Center was established at Chamkani Morh GT Road, Peshawar. It was run by a part-time veterinary consultant DSP, Dr Muhammadullah who visited this and other farms in the premises and provided therapeutic and advisory services. DSP Innovations envisions, especially introduction of elite dairy and beef semen produced at CEBG facilities, into the local commercial farms. Good practices will be introduced at the local farms, especially

improved hygienic status through availability of plenty of clean water using solar water pumps and bio-waste management.

Unemployed veterinary graduates, about 1000 at provincial level, are being supported in career development by the Dairy Science Park. Small and Medium Enterprise Development is providing support to these young graduates in entrepreneurship development. Financial aid agency, especially Meezan Bank and Apna Bank have agreed to facilitate entrepreneurs through Islamic Financing Packages. Medicine and Feed companies working in the province and corporate livestock and poultry farms in the province and commercial and government firms in the Middle East are facilitating these young graduates in getting jobs.

The provincial government was convinced to allocate Rs.200 million for establishing a model slaughter house in consultation with the Park and has directed for establishment of Dairy Science Park Board to implement the idea in collaboration Peshawar Development Authority. These facilities will provide processing and marketing backup to the local livestock and poultry farms and link them with the international market.

Reshaping Academic Approaches

The teaching and research activities at the University of Agriculture Peshawar were reshuffled to respond to the existing and emerging challenges faced by the farming and business community and the consumers. Under the DSP the laboratory setup at the Animal Health Department is being utilized for investigating disease problems in the medium sized livestock and poultry herds/flocks and monitoring hygienic status of production, processing and marketing facilities of livestock and livestock products. The University Veterinary Clinic was transformed into a sustainable unit providing medicines and services under a revolving fund at a pharmacy shop.

Livestock Management Department has been investigating the sheep, goats, poultry, dairy and beef animals for their productivity, products quality and business potential. Carcass yield and quality. Processing of meat, palatability and consumers' preferences are documented. The local livestock and poultry breeds are investigated for productivity and business incubation. Commercial farmers are provided technical services and good practices are introduced.

The University Cattle Feed Mill of Animal Nutrition Department has been run under a lease arrangement with a private partner. It has provided a gateway to the University System for applied research and an effective outreach setup for the mediums sized commercial livestock farmers. The Faculty members and postgraduate students have been utilizing these facilities for applied research and getting feedback from the farmers utilizing these products. Alternate feed resources are being explored and new technologies developed for enhancing feed utilization by the livestock and poultry species. Feasibility models are being developed for entrepreneurship in meat production.

Development of Entrepreneurship models

Through the reshaped postgraduate research, the Poultry Science Department of the University successfully came up with several entrepreneurship models. Various poultry birds were studied including quails, under a revolving fund. Several studies were conducted to study the feed conversion ratio, supplementation of antioxidants, growth pattern, breeding efficiency and effects of aflatoxins on economic parameters and other aspects. It was concluded that AFB1 is capable of inducing clinico biochemical reactions and alterations in different organs when fed to quails in different concentrations. A study on effect of organic acids on the performance of Japanese quails and found that net return was significantly higher by the supplementation. Two studies were conducted to investigate efficiency of artificial insemination and identification of a suitable extender and their effect on quail eggs fertility. AI showed good results in Japanese quails in term of least fertility related problem as compared to natural mating. Proctodeal gland foam extender was found to be very effective for fertility, hatchability, sperm motility and count and as well as economical in terms of cost per chick.

Analysis of the data generated on quails at the Department showed that a rolling fund of Rs.400,000 to generate Rs.42,000 per month which is an excellent entrepreneurship model for the region.

Rabbit farming system was studied at Khyber Pakhtunkhwa (KP) under an ALP-PARC project. The study concluded that scope of rabbit as meat animal exists in the province and improvement in rabbit management could efficiently improve its production and utilization. The University has established an experimental rabbits unit and several studies are underway to demonstrate appropriate breeding, health and feeding management of this animal and utilize it as an alternate source of meat production and self employment for the youth. Based upon the data generated so far, a feasibility of the production system has been prepared and we recommend it as an entrepreneur for the youth of the province. The data analysis revealed that an investment of Rs.200,000 has resulted in generation of a monthly income of Rs.41,325 per month through keeping 500 rabbit.

The model was extended to the field through farmers training, especially sponsored by SRSP.

Biorisk Management

A collaboration on “Biorisk Management” is with process with the Sandia National Laboratories USA. A four-members delegation of the Park visited the Netherlands in March 2015 for launching the initiative and a 9-members delegation of DSP and a 4-members delegation of Sandia National Laboratories USA met in Dubai to hold the Pakistan Biorisk Management Curriculum Workshop. for Universities in the Pakistan and the Region. A collaboration was initiated with the Khyber Medical University Peshawar under an MoU to develop quality control standards and introduce into local livestock production, processing, marketing and services network, for protecting public health.

Renewable Energy and environment protection

Biogas generating system has been introduced at mediums-sized farms in the province. A review study was supported, directed at establishment of commercial biogas sector for electric power generation. Keeping in view Pakistan's agriculture base and environmental concerns, we focus on biogas sector for electric power generation. Biogas can act as an alternative, sustainable, and renewable energy resource. Our analysis illustrated that there is a pronounced potential for commercial biogas sector for mitigating energy crisis in Pakistan. Solar energy has been found in abundance in the region and training programs were organized to introduce biogas and solar energy for farm operations. The outgoing graduates have been motivated to introduce the technology as a tool for sustainable development in the field. Two biogas backed electricity generation units were installed at the University of Agriculture, Peshawar and COMSATS University, Abbottabad as demo models for replication and training of stakeholders.

National/international linkages

The Center of Excellence on Bovine Genetics (CEBG) was approached by DSP for bilateral collaboration in research and training/business support to the farmers and veterinary practitioners of Khyber Pakhtunkhwa. The elite semen and embryo available at CEBG, from cattle with a milk yield of up to 14000 per lactation for dairy cows and a daily weight gain of above 1000 g for beef animals were recommended for supply to the local farmers and practitioners under the Park in addition to the training courses, at appropriate rates. A joint pilot project may be launched for rearing such calves at farmers level. DSP will facilitate marketing of CEBG products and services at NGOs and other organizations in KP.

A letter of intent was signed with the Chinese Academy of Agricultural Sciences for establishing Economic Collaboration through Livestock Commercialization (ECLC) in the Pak-Afghan Region to raise the income of local people through intervention strategies, training of educated personnel, professionals and students. Human resource development, an international dialogue and collaborative research project forms an integral part of this collaborative effort to assist the local institutions and civil society organizations in capacity development. ECLC will help build capabilities of the local research and development organizations and groups of farmers, butchers, veterinarians, para-vets. This capability will enable the stakeholders to support viable livestock farming producing milk, meat and eggs qualifying the local and international quality standards. The Endowment fund will help the young educated persons in establishing their entrepreneurs and common facility centers will be established for meeting the marketing and processing requirements of entrepreneurs. KP Chamber of Commerce and Industries (KPCCI), Peshawar, Pakistan and Small and Medium Enterprises Development Authority (SMEDA), Peshawar, Pakistan will be implementing partners of the ECLC.

Country Focal Points (CFPs) have been appointed for the Park for Australia, China, India, Pakistan, Afghanistan, Middle East, Turkey, Netherlands, USA and Canada. The CFPs will look for collaborative research, support to the small and medium enterprises (SMEs), consultation on the issues related to zoonotic diseases, the food safety, trans-boundary

diseases, capacity development of stakeholders, training of scientists, farmers, industry representatives, students and policy makers and getting partners and sponsors for holding the biennial series of International Workshops on Dairy Science Park.

The Future Roadmap

The Roadmap of DS Park has been prepared in line under the following policy guidelines:

- United Nations - Transforming our world: the 2030 Agenda for Sustainable Development, #SDGAction9671
- Pakistan Vision 2015, Government of Pakistan
- Industrial Policy Khyber Pakhtunkhwa 2016

1. Dairy Science Park (The Society)

A society emerged at the University of Agriculture, Peshawar, Pakistan, registered under Societies' Registration Act XXI of 1860, Government of Khyber Pakhtunkhwa supporting self employment and hygienic food production in partnership with UN SDGs (Requirements: The Senior Minister LG committed constitution of Task Force and a Grant of Rs.50 million to demonstrate commercialization models and prepare act for DSP Board).

Objectives:

1. To attract the stakeholders for active participation in the development process.
2. To spread awareness among the masses and sensitize them to understand the issues of food security and quality.
3. To support utilization of livestock resources for self-employment of the youth.
4. To network the farmers, investors, experts and public sector organizations for joining hands in covering the province into an export base for Halal Meat, milk and eggs in an environment friendly, cost effective way, fulfilling demands of local markets.
5. To utilize the academic, research and development resources of the provincial government and the Dairy Science Park for improvement in livestock farming through quality control standards and certification for biosafety.
6. To provide marketing linkage to the producers, input suppliers and service providers in livestock and allied sectors.

2. DSP Board (Development Component)

Establishment of a Dairy Science Park Board has been agreed by the provincial government, for developing the province as a Halal Meat Export Base utilizing the manpower, research and development institutions and unutilized/under-utilized public and private assets through PPP, DSP Veterinary Clinics and Marketing Centers, Agri-Marts, franchise developments, commercial companies, etc. Requirement for the Authority comprise: i. KP DSPA Act; ii. Endowment Fund Rs.250 million. A Task Force has been agreed by the Senior Minister Local Government and directed for initiation of a

Summary for Approval of the Chief Minister KP. The following guidelines have been provided:

Principles

- The Board will be established as a symbol of hope for the people of KP and the adjoining regions of FATA and Afghanistan.
- The Board will ensure productive utilization of the human resource and material assets in the best interest of the province and the region through partnership with the public and private sector organizations and individuals.
- The Board will be a regulatory, financial, development and marketing authority supporting commercialization of livestock and allied sectors in KP.
- The Board will work on the basis of self reliance and no repeated funds will be requested for routine operational activities; however, for introduction of special packages and campaigns grants and donations will be accepted.
- Selection and promotion of staff and fixation of salary will be made on performance basis.
- Sales and purchases will be made through local committees and advertisements in the printed and electronic media; local and international; and quality of materials will be preferred for purchases.
- Performance audits will be preferred over fiscal audit and liberty will be provided to local committees in financial transactions to avoid unnecessary delays.
- Endowment Fund will be utilized up to maximum to support establishment of new entrepreneurs, improvement of existing entrepreneurs, establishment of common facilities centers and launching of feasible and innovative investment models.
- Information Technologies, business administration, material engineering; environment sciences, satellite information system, etc, will be integrated into the Board's functioning using the national and international linkages.
- Technical, administrative and financial progress of the Board will be reported monthly and a toll free telephone number will be publicized widely to get advice and inputs from the masses and complaints for any irregularity, for the purpose of transparency and accountability.
- Members and staff of the Board will work like a family with equal respect and working space for all.
- Awareness campaigns will be held widely to reach the target groups and get them engaged with Dairy Science Park network for participating in the provincial development agenda.

Strategic Vision

- Developing SOPs for producers, processors, marketing partners and service providers and certification for quality assurance
- Introducing innovations like biogas, solar water pumps, good practices and traceability in the medium sized livestock and poultry farms registered with DSPS through Business Facilitation Centers in the private and public sectors
- Price of the products of the registered farms will be fixed for the registered farmers in consultation with the price regulating committee of the DSPB

- Financial, technical and marketing support to the youth for self-employment
- Facilitation of Corporate and Development Partners of DSPS in horizontal and vertical expansion of business activities
- Introduction of Agri-Marts, and a chain of restaurants linked with the registered farmers
- Establishment of livestock and poultry breeding farms in partnership with the public or private organizations/individuals
- Training of entrepreneurs, farm/industry workers, scientists
- ISO certification of producers, processors and service providers through DSPS Panel of Experts and Development Partners
- Financial support to the registered members through Islamic leasing, Mudaraba and Takaful
- Competitive Research Grants for: i) developing feasibility models for entrepreneurship; ii) export-oriented/import-substitutional industrial research
- Infrastructural support for providing cold chain, transportation, cold storage and air cargo for Halal meat
- Legislation for protecting interests of the consumers and members/partners of the Park
- Accepting and donating grants, aids and loans in the interest of the people of KP
- Close liaison with the international partners and friendly countries in achieving the goals

Endowment Fund

- Developing feasibility models
- Facilitating groups of stakeholders in establishing entrepreneurs
- Input supply and services through Business Facilitation Centers
- Replication of prototypes through graduate entrepreneurship
- Establishing breeding stocks, farming and value addition, renewable energy, housing
- Branding of DSP Halal meat and outlets/ export for product marketing
- Charity and Bait-ul-mal for the neglected segment of Society
- Fund to support various livestock and poultry development activities including training, market research, upfront procurement for sale to the dairy farmers or dairy industry of containers, coolers, instant chillers, liquid nitrogen flasks and other equipment; to support innovations, the development and promotion of farm products, consumption and export of farm products

3. University of Veterinary Innovations and Commercialization (UVIC, Academic Component)

Faculty of Animal Husbandry and Veterinary Sciences (FAHVS), the University of Agriculture Peshawar will be upgraded to UVIC to promote industrial research, quality control, entrepreneurship development, Halal certification, and legislative support to the entrepreneurs. Logistic support will be provided to the DSP Society and DSP Board.

Research priorities

- Integration of the teaching and research with the sectoral issues, emerging challenges and needs of the stakeholders
- Development of quality control and certification standards for medium-sized entrepreneurs engaged in livestock and poultry production, processing and marketing; farmers' groups; exporters and corporate sector
- Establishment and collaboration with reference laboratories for quality control and certification of medium sized entrepreneurs, farmers' groups, exporters and corporate sector
- Integrating environmental, ethical and public health concerns into the livestock food value chain
- Introducing innovations like biogas, solar water pumps, good practices and traceability in the medium sized livestock and poultry entrepreneurs
- Analyzing financial, technical and marketing issues in livestock and poultry production practices
- Studies on cost-effectiveness of livestock and poultry entrepreneurship
- Creating a database of Corporate and Development Partners of DSPS for horizontal and vertical expansion in livestock and poultry entrepreneurship
- Analysis of issues faced by livestock and poultry breeding farms in partnership with the public or private organizations/individuals
- Studies on infrastructure availability for, milk/meat/eggs factories, cold chain, transportation, cold storage and air cargo for Halal meat
- Studies on legislative barriers faced by the producers, service providers and consumers of livestock and poultry products
- Studies on the status and identifying success stories in financing of livestock and poultry entrepreneurship under the Islamic perspectives
- Monitoring and facilitating the developments made under the Dairy Science Park through local government and other sponsors

Structural reforms

The existing Faculty (FAHVS) will be split into two Faculties of: i) Veterinary Sciences and; ii) Animal Production Sciences and a third; iii) Faculty of Dairy Science Park will be created as follows:

a. Faculty of Veterinary Sciences

- Institute of Biosciences: The existing disciplines and resources available for teaching and research in Anatomy, Physiology and Biochemistry; these facilities would be strengthened for educating the students on the basics of animal production, health care and stress factors hitting these two parameters.
- Institute of Pre-Clinical Sciences: The existing disciplines and resources available for teaching and research in Pharmacology, Microbiology, Pathology and Parasitology; these facilities would be strengthened for better

understanding the diseases patron and role of the pharmaceutical products in improving health and productivity.

- Institute of Clinical Sciences: The existing disciplines and resources available for teaching and research in Reproduction, Medicine, Surgery and allied disciplines; these facilities would be strengthened for meeting challenges faced by the farming and business communities, generation of self-employment and production of hygienic food for the local people and export.

b. Faculty of Animal Production Sciences

- Institute of Dairy and Meat Sciences: The existing Department of Livestock Management will be upgraded to the Institute of Dairy and Meat Sciences and would take care of advances in dairy science, management systems, breeding studies, management innovations, stress management and farm automations
- Institute of Animal Nutrition and Feed Sciences: The existing Department of Animal Nutrition would be upgraded to Institute of Animal Nutrition and would take care of exploring indigenous feed resources, fattening trials, alternate feed resources and industrial application of nutrition sciences
- Institute of Poultry and Wildlife Sciences: The existing Department of Poultry Sciences would be upgraded to Institute of Poultry Sciences and would take care of broilers and layers production, quails breeding and farming, turkeys farming, ducks farming, rabbits farming, worm meals studies, enzymes application in poultry feeds and fortified eggs production

c. Faculty of Dairy Science Park

- Department of Products Technology: The existing Dairy Technology Center will be added with a Meat Technology Center and will be upgraded to the status of Department of Products Technology under the Faculty of Dairy Science Park; responsible for teaching and research on dairy/meat/eggs products, covering nutrients analysis and quality parameters
- Department of Biorisk Management: The existing biorisk management initiated through the Zoonosis Information Resource Center and Zoonotic Disease Laboratory sponsored by the Relief International and the Pakistan Biorisk Curriculum sponsored by Sandia National Laboratories USA, will be upgraded into the Department of Biorisk Management under the Faculty of Dairy Science Park. This Department will take care of teaching and research in biorisk management and develop quality standards for livestock and poultry farms, processing facilities and marketing outlets.
- Department of Entrepreneurship and Certification: This Department will comprise the University Feed Mill, University Dairy Farm, Regi Town

Slaughter House under construction by the provincial government and other potential activities of the Faculty and provincial Government/private sector. The Department will work on teaching, research and development of feasibility models for self-employment of youth and hygienic food production for the people. This Department will collaborate with the Dairy Science Park Society and its registered partners, the sister Departments and private sector/development organizations, to evaluate the registered enterprises for profitability, quality parameters, Halal standards, supporting commercialization and certification.

CPEC Vision: DSP envisions KP and northern areas of Pakistan and the adjoining areas of Afghanistan, Tajikistan, and China into a food export base. For this purpose satellite campuses of the University will be established at Kashgar, Gilgit, Bannu, and Gwadar. Partnership will be established with local investors, corporate farmers and processors to initiate joint ventures.

Academic Programs

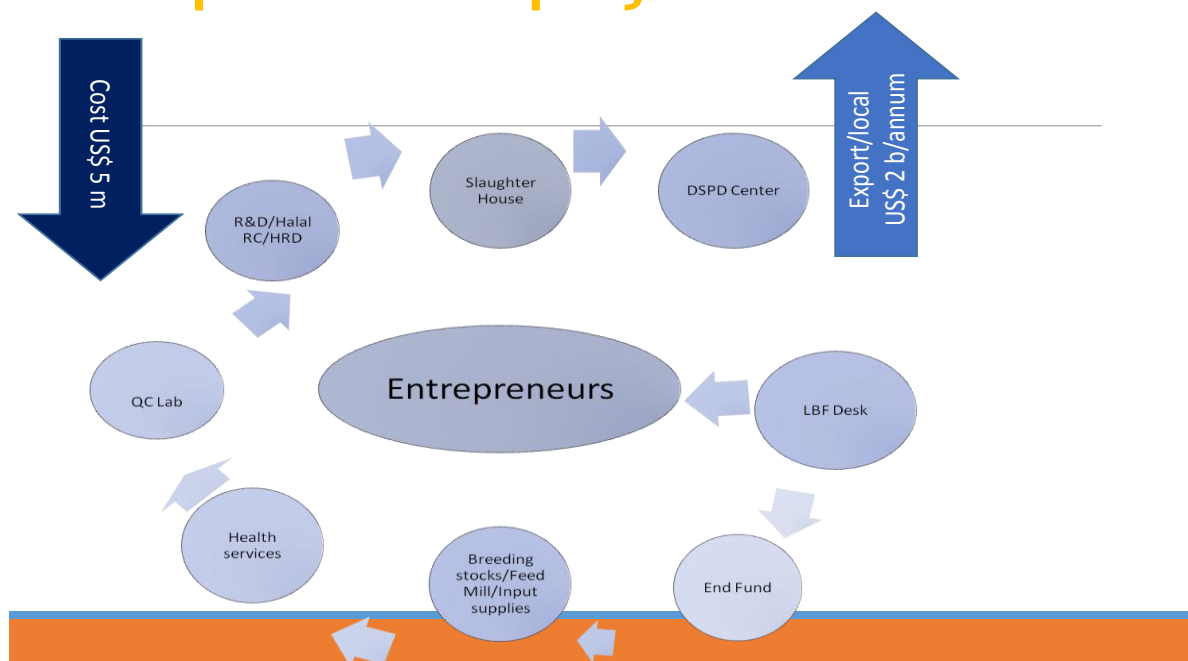
- The Existing Faculties will continued the DVM/MSc Hons/PhD degrees, already in place. New degrees may be introduced as per society needs and availability of resources; Postdoc in various disciplines with sufficient academic standing
- Faculty of Dairy Science Park will introduce M Phil/PhD in Agribusiness (Livestock)/Meat and Dairy Technology/Public Health and Biorisk Management; Diplomas in Livestock Entrepreneurship/Halal Food; Certificate courses; Postdoc in various disciplines with sufficient academic standing

The Academic Programs have been approved by Boards of Studies of Animal Health and Poultry Science Departments and will be submitted to the remaining Boards for approval.

Summary of cost (Pak Rs.)

Item of work		Year 1	Year II	Year III	Total
I	Civil work	121,618,000	2,146,680	0	123,764,680
II	Furniture and furnishing	5,500,000	0	0	5,500,000
III	Equipment	11,000,000	30,000,000	19,638,674	60,638,674
IV	Vehicles	25,700,000	0	0	25,700,000
V	Lab glassware and chemicals	400,000	600,000	1,000,000	2,000,000
VI	Books, periodicals, software and internet	1,000,000	753,320	0	1,753,320
VII	Purchase of animals	2,060,000	0	0	2,060,000
VIII	Purchase of animals feed	800,000	0	0	800,000
IX	Miscellaneous	4,876,926	500,000	500,000	5,876,926
X	Total Salaries	28,840,000	31,624,000	11,442,400	71,906,400
XI	Endowment Fund for entrepreneurship	700,000,000	0	0	700,000,000
	Total	901,794,926	65,624,000	32,581,074	1,000,000,000

Entrepreneurship cycle



Impact

1. Conventional medium-sized livestock and poultry farmers to be converted into viable model enterprises through innovations: 500
2. New entrepreneurs to be trained and facilitated: 1000/year
3. Consumers and general public to be educated in public health and quality standards, through seminars, workshops, field days, mobile SMS, telemedicine, and mass media: 100,000/year
4. Students to get admitted into diplomas and degrees in livestock entrepreneurship, biorisk management, and meat technology: 100/yr
5. Availability of Halal meat, exportable surpluses (at least US\$ 5.00 billion) and self employment for the people of KP, FATA, Northern Areas and the adjoining regions of Afghanistan, Tajikistan & China.
6. A stable peace and soft image of the people in the region

The Team

Board of Governors

1. Chief Patron Prof M. Subhan Qureshi
2. Chief Executive Engr. Irfan ul Haq Qureshi
3. Executive Director Mr. Zafar Hussain Paracha
4. General Secretary Mr. Kamran Khan
5. Director Farming, Khanzada Ahmad Kamal
6. Director Meat Processing, Mrs Nighat Jawaaid c/o Mr Bahram Khan
7. Chief Technical Advisor Prof Sarzamin Khan
8. Chief Veterinary Consultant Dr Rajwali Khan
9. Veterinary Consultant Dr. Anwar Shah
10. Veterinary Consultant Muhammad Ullah

Board of Advisors

1. Inayatullah Khan, Senior Minister LG, KP
2. Arif Yousaf, Special Assistant to Chief Minister KP (Law)
3. Mohibullah Khan, Special Assistant to Chief Minister (Livestock)
4. Zahidullah Shinwari KPCCI
5. Khan Bahadur Marwat SBBU Sheringal
6. KB Mirbahar SBBUVAS Sakrand
7. Khalid Khan Higher Education
8. Asad Sultan Poultry Nutrition/PRO
9. Muhammad Sarwar Animal Nutrition
10. Zafar Iqbal Veterinary Science
11. Ahmad Naveed Livestock Research
12. Sher Muhammad Livestock Extension
13. Umer Sadique One Health
14. Nasir Shah Higher Education
15. Farooq Shah NIM/PARD/HRD
16. Javed Khattak SMEs' development
17. Wahid Mahmood Security
18. Mufti Naeem Bukhari Sharia

Panel of Experts

- | | |
|---|---------------------------------|
| 1. Arshad Hashmi, Business Incubation | 2. M H Andrabi, Biotech |
| 3. Khalid M Shouq, Media | 4. Prof A Rahman, Meat Sci |
| 5. Sontakke Umesh Balaji, Animal Nutrition | 6. MS Tufail, Fodders |
| 7. Nazir Ahmad Khan, Animal Nutrition | 8. SH Raza, Livestock Ext |
| 9. Arshad Zahoor, Public Health | 10. S Murad Khan, Small Rum |
| 11. Zahoor ul Hassan, Pathology | 12. Shoaib Sultan, Feed Tech |
| 13. Munibullah Yousafzai, Epidemiology | 14. Alladdad Khan, Ext&Comm |
| 15. Abdul Qayyum Marwat, IT | 16. Shakoor Ahmad, QC |
| 17. SM Sohail, Animal Breeding and Genetics | 18. Rashid Aman, Entrepren |
| 19. Naila Chand, Poultry Science | 20. Zubia Masood, Fish |
| 21. Melissa Finley, Biorisk Management | 22. Sadia Qureshi, Halal Food |
| 23. Shakir Ullah, Sheep Enterprenureship | 24. Nadar Khan, Forages |
| 25. Niaz Ali, Public Health | 26. Zia ul Haq, Public Hlth |
| 27. Peter Wynn, Australia | 28. Iris Shurdhi, Biorisk Mngt |
| 29. Samina Qureshi, Economics/Publication | 30. Nighat Perveen, Entomology |
| 31. Dr Ihsanullah, Dairy Production | 32. Mr Ashfaq, Renw Energy, UET |

Country Representative

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|--|------------------------------------|
| 1. Tawheed Ali, FP Afghanistan | 2. S Shafiullah Khan, FP Australia |
| 3. Abdur Rahman Ilyas, FP India | 4. Mithat Direk, FP Turkey |
| 5. Olivia Ansenk, FP Netherlands | 6. Riaz Hussain, FP Canada |
| 7. Mushtaq A Memon, FP USA | 8. Asim Ijaz, FP Pakistan |
| 9. Gang Li, FP China | 10. Dr Asghar Khan, FP Middle East |
| 11. Ahmad Syed, Business Coordinator Qatar | 12. Dr Sabir Khan, FP Tajikistan |

Corporate Partners

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|---------------------------------------|-------------------------------------|
| 1. DSP Slaughtering Point, Bar Tehkal | 2. Jan Arcade Meat Shop, Peshawar |
| 3. Meat Park, Peshawar | 4. Dairy Life, University Feed Mill |
| 5. Mr Kamal Khan, silage industry | 6. Reon Energy Solutions, Lahore |
| 7. Ghazi Brothers, Lahore | 8. DSP Innovations |

- | | |
|---------------------------------------|--------------------------------------|
| 9. Farmer's Sausage Company, Peshawar | 10. Royal Dairies, Peshawar |
| 11. CATTLEKIT, Lahore | 12. Livestock Exporters Assoc Pak |
| 13. Riaz Park, Bannu | 14. Romer Labs, Pakistan, Rawalpindi |
| 15. Asif and Co, Peshawar | 16. Calves and Calves Pvt Ltd |

Development partners

- | | |
|---|------------------------------|
| 1. UNDESA, United Nations, NY | 2. SMEDA Peshawar |
| 3. Khyber Medical University, Peshawar | 4. Univ Agric, Peshawar |
| 5. Khyber Instt of Veterinary Sci, Peshawar | 6. Konya Şeker, Turkey |
| 7. Selçuk University, Konya, Turkey | 8. SBBU, Sheringal |
| 9. Veterinary Research Institute, Peshawar | 10. Sandia National Labs USA |
| 11. CEBG, Military Farms Group Okara | |

Funding status

The Society has occupied head office at 401-A, City Towers, University Road Peshawar and the rent and maintenance of office are sponsored by the Chief Executive and Executive Director. The Chief Executive is also financing website of the DSP, registration of the Society and contacts with potential partners for registration and linkages with the national and international partners. The International Workshop series is sponsored through HEC grants, industrial exhibition of private companies and registration. The tours to Amsterdam and Dubai, for formulating Biorisk Management Initiative are sponsored by Sandia National Laboratory USA. The Senior Minister LGE&RD has approved proposal of the DSP for establishing a model slaughter house valuing Rs.200 million at Peshawar. The DSP Academic Component and DSP Authority valuing Rs.500 million were agreed in principle by the Senior Minister KP. Other development partners and international agencies are supporting the activities of the Dairy Science Park on case to case basis and the Society is looking for more partnership to achieve the greater goals of generating self employment for the youth and hygienic food production for the people of the Region in partnership with the United Nations' SDGs.

Publications

Conference Proceedings

1. International Workshop on Dairy Science Park, November 21-23, 2011
2. 2nd International Workshop on Dairy Science Park, November 18-20, 2013
3. 3rd International Workshop on Dairy Science Park, November 16-18, 2015

Journal: Meat Science and Veterinary Public Health

DSP Newsletters

March 2015	June 2015	September 2015	December 2015
March 2016	June 2016		

Special Reports

1. Int Workshop on Dairy Science Park, November 21-23, 2011-Recommendations
2. Journal of Animal and Plant Sciences, Vol 22, Supplement No.2 and 3, 2012.
3. 2nd Int Workshop on Dairy Science Park, Nov 18-20, 2013-Recommendations

4. 3rd Int Workshop on Dairy Science Park, Nov 16-18, 2015-Report
5. Report on Consultative Workshop on Pakistan Biorisk Management Curriculum Development, Dubai, UAE, May 21-25, 2016.
6. Report on Slaughter House, Peshawar Cantt May 2016
7. DSP Profile, July 2016

Meetings

1. 1st Meeting Board of Governors, 15th July, 2015
2. 2nd Meeting Board of Governors, 4th January, 2016
3. 3rd Meeting Board of Governors, 15th July, 2016

Dairy Science Park

Pictorial Review



Senior Minister Khyber Pakhtunkhwa Mr Inayatullah Khan chaired the inaugural session of DSP 2015



District Mayor Peshawar, Arbab Asim Khan getting shield from Prof M S Qureshi and Prof Zafar Iqbal on day 2 of DSP 2015



Special Assistant to the Chief Minister on Law (Mr Arif Yousaf) and Livestock (Mr Mohibullah Khan), Mr Jaffar Shah MPA, Prof ZA Swati Vice Chancellor and Prof M S Qureshi Dean co-chairing the concluding session of DSP 2015



DSP and CEBG agreed on utilization of elite dairy and beef semen for commercial farmers in KP ad FATA



DSP-SNL Biorisk Management Curriculum Development Workshop at Dubai, May 21-26, 2016



DSP signed Letter of Intent with Chinese Academy of Agric Sciences



خیبرمیڈیکل اور زرعی یونیورسٹی کے مابین تعاون کی یادداشت پر دستخط کئے جا رہے ہیں
DSP and KMU entering into collaboration in Biorisk
Management through an MoU



DSP team explored collaboration in the Netherlands and attended
third One Health Congress



DSP established Vet Clinic and Marketing Center under Meat Park

Board of Governors



M Subhan Qureshi



Irfan UH Qureshi



Zafar H Paracha



Sarzamin Khan



Kamran Khan



Bahram Khan



Khanzada A Kamal



Anwar Shah



Muhammad Ullah



Rajwali Khan



Mr Zahid Shinwari President KPCCI, Mr Zafar Paracha, Prof M Subhan Qureshi, Prof Umer Sadique and Mithat Direk (Turkey) at Industrial Exhibition of DSP 2013

Development partners of Dairy Science Park



Corporate Partners of Dairy Science Park

