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SMEDA

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Dairy Science Park

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Recommendations and Pictorial review

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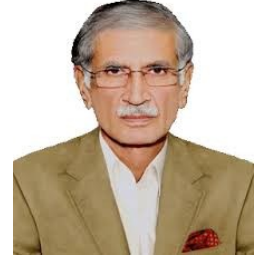
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Message by

Mr Pervez Khattak

**Chief Minister
Khyber Pakhtunkhwa**



The province of Khyber Pakhtunkhwa has been facing numerous challenges in the recent past affecting the socio-economic status of the people. The present government has decided to take concrete steps to revive the economy, pave way for huge investment, setup strong industrial base and promote tourism and trade activities in the province under a comprehensive plan. For this purpose the Khyber Pakhtunkhwa Investment Board is being revitalized and given more powers and approving generous incentive to the investors besides creating congenial atmosphere for industrialization.

Similarly survey has been initiated for setting up new industrial Estates near Big cities including Peshawar, Nowshera, Charsadda, Mardan, Kohat, Malakand and suitable places on both sides of motorway. In this regard high level meeting of KP Investment Board was held at Peshawar wherein the progress made so far was reviewed and necessary decisions were taken. It is pertinent to mention here that the KP Investment Board was constituted one year back but till then remained inactive but soon after PTI government coming into power, reconstituted and streamlined it with induction of the senior industrialist Mohsin Aziz as Vice Chairman giving him the task of making the province attractive for investment and industrialization.

The people of this province are hard working and get their livelihood support from agriculture and livestock resources. However, the productivity status is low due to poor practices and low socio-economic status of the farmers. The International Workshop on Dairy Science Park 2013 is an excellent opportunity for the scientists, development practitioners and business community to discuss various aspects of livestock health and production and suggest recommendations for improving income of the farmers and quality of the product. It will lead to enhanced living standard of the farming families and reduction in the risk of human diseases of animal origin.

The novel step taken by the University of Agriculture supported by the provincial government departments, the Khyber Pakhtunkhwa Chamber of Commerce and Industry and SMEDA is commendable. I hope that the delegates will be successful in formulating a joint strategy for developing the livestock resources for the welfare of people of this province. The provincial government will extend all possible support for making the Dairy Science Park a success story on the world map.

Mr Pervez Khattak

Message by

Mr. Shahram Khan

**Minister, Agriculture and
Information Technology**



Welcome delegates, to Peshawar, the gateway to Central Asia. The people of Khyber Pakhtunkhwa have been getting livelihood support mainly, from agricultural and livestock holdings. The Department of Agriculture, Livestock and Cooperatives is responsible for conserving and developing these resources.

The Department has been extending its services through a network of civil veterinary hospitals, dispensaries, artificial insemination centers and livestock farms. The provincial livestock department comprises extension and research wings. The Directorate General of Livestock and Dairy Development (L&DD) (Extension) undertakes to accomplish various assigned tasks in discharge of its responsibility towards the development of livestock sector. Breed improvement directorate and Animal Husbandry In-service Training Institute are working for their specialized mandates. Animal health facilities and services are provided to livestock farmers through curative and prophylactic measures and maintenance of veterinary hospitals, dispensaries and centers in functional order. Improvement of local breeds of cattle and buffalo is another focused area through the provision of artificial insemination service to the livestock farmers; establishment and maintenance of artificial insemination centers and sub-centers. Livestock production extension services are provided to the livestock farmers (and female farmers in selected cluster areas) through a network of veterinary institutions.

The Directorate General L&DD (Research) comprises Veterinary Research Institute and the Directorate of Livestock R&D. The main campus takes care of vaccine production and research on bacterial, viral and parasitic infections. With a view to extend research and diagnostic facilities to the remote areas four Veterinary Research and Diagnostic Laboratories (VR&DL) were established at D.I.Khan, Swat, Mansehra and Kohat. The Directorate of Livestock Research and Development is working on various aspects of livestock production like animal nutrition, dairy technology and fodder production.

I appreciate the efforts the University of Agriculture Peshawar for networking the stakeholders through the Dairy Science Park and highlighting the commercial aspects of the Livestock Sector. The farming system needs improvement to introduce cost-effective productivity and enhancing products quality. I hope the workshop will come up with feasible recommendations for implementation by the public and private sector organizations. In my recent visit to the University, Prof M Subhan Qureshi suggested converting the province into a meat export base through developing and networking of the graduate entrepreneurs. He and his team have worked hard on this program and have presented it to the Khyber Pakhtunkhwa Chamber of Commerce and Industries. I endorse his proposal ensure the support of the provincial government to materialize this dream.

Mr Shahram Khan

Message by

Rafaqat Ullah Babar

**Head Investment Promotion Cell
Chief Minister Secretariat KPK**



I was pleased to know about the Dairy Science Park 2013 through a telephonic discussion with the Chief Organizer. Another pleasure was that it is the second international workshop in the series and that it has explored another valuable natural resource of the Khyber Pakhtunkhwa, the meat production terrain of the northern and southern parts of the province.

I welcome the distinguished delegates of the Dairy Science Park 2013 to the Khyber Pakhtunkhwa situated strategically at the corridors of the historic silk route. The province is rich in a number of resources. We have known reserves of precious minerals and gem stones, slopes where one can tame the wild water to produce hydel energy, breathtaking sceneries and a rich cultural heritage to lure domestic and international tourism. And, of course, we cannot forget the livestock sector, a source of livelihood support for the rural masses and nutritious food for the consumers.

We have undergone an intensive exercise to ensure that caring for our investors remains at the heart of core business processes of government machinery. The purpose of this Investment Promotion Cell is to provide one window service to investors. We have the expertise to enrich you with information about business sectors you want to explore. We have a mandate and authority to liaison and form a bridge between investors and relevant government authority, technical experts, financial institutions.

I appreciate the theme of the current workshop highlighting the export potential of the province for Halal Meat. Involvement of the people of this province in the meat production and export in Thailand has been a welcome development. Why can we not utilize their skills and wisdom in developing our own resources for domestic and international markets? The Government of Pakistan has recently entered into cooperation with Thailand and we would like to be a part of such initiatives. We must also explore cooperation with Brazil, holding 55% share in International Halal Meat Export and Turkey a big meat importer.

Let me be optimistic about the current workshop, providing an opportunity to the relevant stakeholders to present their scientific papers, development success stories, entrepreneurial capacity of the livestock-related business and safety and Halal aspects of the meat production. I invite all delegates to come and explore the investment opportunities in KPK. We will welcome you with traditional courtesy and hospitality KPK is known for.

Rafaqat Ullah Babar

Message by

Zahidullah Shinwari

President, Khyber Pakhtunkhwa
Chamber of Commerce and Industries



I am pleased to welcome distinguished delegates of the Dairy Science Park 2013 to the Khyber Pakhtunkhwa, the land of hospitality. This region had served as a major conduit for the export goods to the western and Central Asian States. Peshawar remained an international focus for the massive trade activities with Afghanistan in particular and other countries of the region in general. In the old good days, the convoys of Traders and Businessmen from the Central Asian Republics, India, China, and Iran used to stay in the city on their way to Afghanistan, Tashkent, Samarkant, Bukhara and other parts of the Central Asian Republics. Peshawar was a hub of business activities and the local businessmen and traders had time-tested business relations with their counterparts in Afghanistan and Central Asian Republics.

The Khyber Pakhtunkhwa is blessed with abounding natural resources such as minerals, precious stones, marble, wood, hydropower potential and copious water resources. There are over 2000 industrial units in the province. There are 3 industrial estates and 10 small industrial estates in Khyber Pakhtunkhwa. The three main industrial hubs include Peshawar, Hattar and Gadoon industrial estates while small-scale industries are concentrated at Peshawar, Mardan, Abbottabad, Mansehra, Haripur, Kohat, D.I.Khan, Bannu and Charsadda areas.

A recent presentation of the team of the University of Agriculture Peshawar, led by Prof M Subhan Qureshi, Dean, was an exciting event followed by a hot discussion on the potential of the province to support the provincial economy. His dream of utilizing the provincial livestock and poultry resources and getting US\$ 1.00 billion through meat export is really thrilling. We have got larger hilly areas and arid regions in the northern and as well as southern part of the province. The hard working farmers, their younger generation and a network of state institutions having the required manpower and infrastructure are available. However these would have to be utilized efficiently for materializing the dream of entering into International Halal Meat Market. The KPCCI is ready to play its due role in this nation building task.

Zahid Ullah Shinwari

Message by

Dr Mukhtar Ahmad

**Executive Director
Higher Education Commission
Islamabad**



I am pleased to invite you to the 2nd International Workshop on Dairy Science Park at the University of Agriculture, Peshawar. Let me call it a success story, based upon several facts. That the first workshop during 2011 proved to be a mega event attracting 500+ delegates, 105 speakers, 10 business companies and development partners, publishing 49 research papers in an impact factor journal, generating the funds through resources from outside the University. The workshop was inaugurated by the Minister for Agriculture and concluded by the Minister for Livestock; however the two authorities could not provide funds materializing the business incubation concept of the Dairy Science Park for producing, value addition, quality control and marketing of Halal meat supported by graduate self employment. The second workshop in the series reflects commitment of the organizers and the University administration to the cause.

The Higher Education Commission is committed to develop sustainable, dynamic and internationally competitive research sector in Pakistan that makes a major contribution to economic prosperity, national wellbeing and the expansion and dissemination of knowledge. A paradigm shift may be seen in HEC policies towards the innovation & entrepreneurship, market based research and close university-community and industry linkages. Since inception of HEC, universities in Pakistan have responded vociferously to the initiatives taken by HEC towards the promotion of R&D. As a result of these efforts, academic employment and retention of doctoral scientists and engineers grew over the last decade and has reached to a record high of 5,826 in 2012 in universities & degree awarding institutions. 80% of the research publications from Pakistan are coming from universities.

Several initiatives have been taken to promote research culture at the higher education institutions of Pakistan, like establishment of the six business & technology incubators, 26 Offices of Outreach, Research, Innovation & Commercialization and three Centers of Advanced Study and Research in the areas of Energy, Food security and water, in addition to the national innovation policy being worked out.

I appreciate the efforts of the Pakistan Veterinary Medical Council in standardizing the education and research in veterinary and animal sciences through revision of syllabus and constant monitoring of the degree awarding institutions for the purpose of accreditation. Prof M Subhan Qureshi, the Chief Organizer has been promoting these efforts as an HEC representative in the Council and I congratulate him for these endeavors in addition to organizing the Dairy Science Park, recognized by HEC through the Best University Teacher Award this year.

Participation of various stakeholders from the business and development agencies through the Dairy Science Park is commendable. I can see this activity as another addition into the business incubation initiatives of the country, enabling the people of northern Pakistan to establish an export base for Halal Meat Market.

Dr Mukhtar Ahmad

Message by

Prof Dr Muhammad Afzal

**Vice Chancellor
The University of Agriculture**



This is my privilege to welcome the distinguished delegates of the Dairy Science Park to the University of Agriculture Peshawar. I am thankful to all of you for sparing time to visit Peshawar and this University for attending the conference, meeting your friends and sharing your skills, knowledge and experience with fellow scientists, development practitioners, farmers and business community representatives. I hope you will enjoy this tour as a memory of your life and will return back to your organization with fresh ideas and plans.

I appreciate the faculty members of the Faculty of Animal Husbandry and Veterinary Sciences for their hard work and introduction of the Doctor of Veterinary Medicine program at the Campus. The University has been extending all possible support in form of appointment of new staff and other available resources. The mega development project of the Higher Education Commission of Pakistan supported the faculty in form of establishment of clinics, feed mill, dairy farm and various laboratories under the Animal Health Department. The Pakistan Veterinary Medical Council has provisionally accredited the degree program and identified some deficiencies to meet the minimum standards. However, through the joint efforts of the faculty members as well as the University administration we have overcome the deficiency and I am hopeful that the degree program will get permanent recognition by the Council. In addition to two journals already being published by this University titled Sarhad Journal of Agriculture and Journal of Weed Science, the University has launched the Pakistan Journal of Meat Science. This journal has been initiated as a continuation of the First International Workshop on Dairy Science Park 2011 and has provide a wider scope covering livestock and poultry health and production, entrepreneur development, feeds and fodder production and Halal certification. The public health aspect of animal production is one of the core objectives of the journal.

Beyond various degree programs at this campus, this University has procured land at Mardan for Amir Muhammad Khan Campus. The concept of Dairy Science Park for industrialization of the livestock sector can be better visualized there. Various commercial activities like calf fattening for beef production, sheep and goats farming for mutton production would be demonstrated. Poultry, quails and turkeys farming would be facilitated at the Campus. All these activities are focused on cost-effective meat production supported by good practices, quality control setup, feed/medicine/equipment dealers and abattoirs. The Conference organizers are working hard to get resources for such activities from various development support organizations and private investors. These activities would be taken as graduate entrepreneurs and are in line with the business incubation concept of the Higher Education Commission of Pakistan and the Youth Development Program of the provincial government.

Prod Dr Muhammad Afzal

Message by

Prof M Subhan Qureshi

**Chief Organizer
Dairy Science Park**



The Khyber Pakhtunkhwa province of Pakistan is rich in natural resources, dominated by livestock, including the 14.84 million sheep and goats valuing Rs.160 billion and 27% share in the national poultry sector having an investment of Rs.200 billion, producing 834 billion kg meat. The huge assets have got the potential to support the agro-based economy of the province through income generation, self employment and production of certified high quality food items for domestic and international Halal Food Market. However, a lot has to be done to achieve this goal, through technical and marketing interventions to boost up the per unit productivity and introduce quality control system.

The Dairy Science Park 2011 was held at the University of Agriculture, Peshawar with the theme: developing a hub of dairy enterprises in the flood affected regions of Khyber Pakhtunkhwa through partnership of academia, government, entrepreneurs & civil society. The Workshop, attended by about 500 delegates, with 105 oral and poster presentations, comprised 10 stalls exhibiting products and services of various development and business organizations. A special committee came up with recommendations including Business Support, Infrastructural Support, Legislative And Policy Support, Animal Production Support, Animal Health Support, Environment And Energy Solutions, Institutional Strengthening and Coordination. The recommendations were submitted to the provincial government and other concerned agencies for implementation. Some projects were initiated at this University and its associated organizations.

Besides teaching and research undergoing under the Pakistan Veterinary Medical Council's monitoring, the Faculty of Animal Husbandry and Veterinary Sciences of this University is also contributing the private sector through outreach organizations, farmers' and business community and NGOs. Various training courses, workshops and seminars are frequently arranged. Collaboration with the Livestock Trainers and Consultants, Agribusiness Support Fund, the Boorke Hospital for Animals, and other organizations has been established. Veterinary Camping Service has been another periodical feature of the Faculty backed up by University Pharmacy Shop. An MoU was signed with the Relief International which helped in investigating zoonotic diseases, communicable from animals to humans. A Zoonotic Information Resource Center and a diagnostic lab were established and several research studies have been completed/are ongoing. A liaison has been maintained with SMEDA and KPCCI for supporting commercially viable projects. Halal Research Council has been collaborating with us under another MoU.

The Dairy Science Park 2013 has focused on Meat R&D involving all stakeholders. Let us hope for a prosperous Khyber Pakhtunkhwa involving the youth in economically viable graduate entrepreneurs for scientific meat production supported by quality control, giving us an excess to the multibillion dollars Halal Meat Market.

Prof M Subhan Qureshi

PREAMBLE

The idea of Dairy Science Park was conceived by Prof M Subhan Qureshi during the Industrial Biotechnology Conference in Egypt, while discussing with Mr Abdur Rahman Ilyas ICRISAT India, the Livestock Resources of the war-hit zone of the northern Pakistan. An International workshop was held on November 21-23, 2011 to sensitize the stakeholders from the public and private sectors of the country for productive utilization of livestock resources. SMEDA was consulted at various phases of the Park. A presentation was made before the Khyber Pakhtunkhwa Chamber of Commerce and Industry which led to establishment of a Standing Committee on Livestock at KPCCI, a business desk at SMEDA and a working group on livestock at the University of Agriculture Peshawar.

The Second International Workshop on Dairy Science Park, November 18-20, attended by 500+ members. The organizers are thankful to the Higher Education Commission for providing Rs.0.5 million as a grant for arranging the event and also the other sister and development agencies and private companies in supporting the event. The conference presented high quality papers during 9 sessions by speakers from various parts of the country, 6 faculty members from Kabul and Nangarhar University Afghanistan and Dr Mithat Direk from Selcuk University, Turkey.

The number of papers presented were 200, comprising oral 85 and posters 115. The abstracts were published in the proceeding book with ISSN number. A recommendation committee has compiled their findings and will be finalized soon for implementation by the relevant stakeholders. The Dean appreciated the patronage of the Vice Chancellor and support of the University Administration, faculty members, supporting staff and students in making the event successful.

The conference was successful in convincing the Khyber Pakhtunkhwa Chamber of Commerce and Industry to approve a Standing Committee on Livestock and to establish a business desk at the Chamber for the first time in their history of the province. It will facilitate graduate entrepreneurs establishment, supported by the required technical and marketing support from all concerned, including the private groups, government departments and the University. Investment opportunity will be explored within the country and in friendly countries through bilateral cooperation.

The efforts of Dr Sarzamin Khan are appreciated for demonstrating poultry and quails production under a revolving fund, postgraduate thesis research and funded trainings for various civil society organizations. It has paved the way for replicating these feasible models by the industry and government, and adding facilities like slaughtering, processing and quality control backup. Dr Umer Sadique supplemented these efforts through research on livestock and poultry diseases and evaluation of the food quality from livestock and poultry origin to ensure protection of public health.

A consultative meeting was held among the representatives of Pak-Afghan-Turkey Business Group. Pakistani delegate comprised the Chief Planning Officer, Agriculture Department Mr Ahmad Saeed; Director General Agriculture; Mr Zafar Paracha from Feed Industry; Mr Rashid Aman SMEDA, Dr Asif from civil society and Prof M Subhan Qureshi Chief Organizer DSP. Dr Mithat Direk from Selcuk University, Konya represented Turkey and Dr Nazar from Nangarhar University represented Afghanistan. It was recommended that the resources available in the region need to be explored and developed for the welfare of the local people and frequent exchange of delegations is needed for promoting scientific and economic collaboration and enhancing trade among these countries. Meat production, processing and export were identified as an important area for cooperation.

The recommendation committee headed by Prof Dr Zahoor Ahmad Swati has compiled their findings during the technical sessions and special meetings with the stakeholders; and the same have been compiled under the following headings:

A. RECOMMENDATIONS

1. The Standing Committee on Livestock at the Khyber Pakhtunkhwa Chamber of Commerce and Industries will analyze the strengths and weakness in the production and marketing lines and working on strategies to provide immediate and long term solutions.
2. Utilizing the Working Group on Livestock and Poultry Business at the Small and Medium Enterprises Development Authority for modulating and supporting the SMEs in the private sector through involvement of graduates and their integration with service providers and marketing actors.
3. Qualified graduates with aptitude, commitment and required skills shall be encouraged and supported to initiate their own entrepreneurship in livestock and poultry production, processing and marketing under various schemes like Prime Minister Youth Support Program.
4. New investment opportunities in the livestock sector need to be highlighted through workshops and seminars in consultation with stakeholders, in partnership with the Khyber Pakhtunkhwa Chamber of Commerce and Industries, the provincial government and the University.
5. All types of animals trafficking needs to be covered under regulation and documentation within the province and along the national and international borders, provided with appropriate technical and legal support.
6. Supporting the present production lines in livestock and poultry with abattoirs, meat processing, storage and transportation faculties at various sites; starting with a demo model at the University.
7. Demonstrating potential commercial activities like silage, hay making and special fodders in certain areas and their availability in feed scarcity areas during certain seasons.
8. Replication of quails, broilers and turkey farming as entrepreneurship models developed at the University of Agriculture Peshawar, for replication elsewhere and integration with marketing network.
9. Linkages with the national and international Industry may be strengthened by involving the graduate internees in the livestock production, value addition and marketing system and the business/civil society organizations in extension, teaching and research.
10. Diploma courses for graduates and short term training courses for skilled workers are recommended in livestock entrepreneurship focused at establishing a network of production, processing and marketing lines.
11. The quality control program available at the Universities and research organization may be strengthened to accredit livestock and poultry products for international markets. Applied doctoral research will be conducted to evaluate and certify the inputs and products.

12. Conducting regular surveys to monitor the trends in livestock production and marketing for identify technical and marketing needs of the sector for further intervention.
13. Revisiting the courses for graduate and postgraduate veterinary syllabi and tailoring them with ground realities in the livestock sector.

B. FARMERS' PERCEPTIONS

1. A draft report was prepared by Mr Azam Shah Dairy/Sheep Farmer/Ex-member Federal Livestock Board and presented in his inaugural paper during the Livestock Development and Business Session of the Dairy Science Park 2013. The same is hereby reproduced by the Chief Organizer, Prof M Subhan Qureshi as follows.
2. Pakistan's livestock sector could not get succeeded in utilizing its economic potential up to an optimum level due to no integration of facts into national development agenda like contribution of the sector to GDP up to an extent of 12%, 55% being within Agriculture Sector. Khyber Pakhtunkhwa being a hilly, arid or mountainous terrain, is suitable for meat production, rather than dairy, however, it could not be integrated into the policy. Livestock assets in the country exceed Rs.1000 billion.
3. Although the sector is ignored at policy level, it still showed an appropriate growth rate of 3.5%, mainly achieved on the basis of interest of the farming and business community at informal level.
4. Majority of livestock holdings belong to low social economic class, falling below poverty line; possessing livestock heads but not the required land. They can be easily shifted to a status entrepreneurship through research, development and marketing support, alleviating their poverty and producing surpluses for the export sector.
5. The livestock farmers are living under primitive system, with the worst type of practices. Integration of scientific practices and marketing backup will increase their income several folds, leaving a visible impact on national economy.
6. A hostile pricing system is preventing growth and development of this sector. The controlled prices of products and uncontrolled prices of farm inputs make the business vulnerable, leading it to total collapse under certain circumstances. The local government authorities must understand that the price of a buffalo during 1990 was Rs.1,000 and milk price was Rs.10. Presently the two figures have reached to Rs.150,000 and Rs.75. Proportionately the current milk price must not be less than Rs.150, if the government wishes to regulate it; otherwise it must be left free as for inputs. Legislation is needed for supporting the existing farming system and attracting new investment.
7. The trickledown effect of the research and development project up to the grass root level is totally lacking, which needs consideration at policy level. The research is conducted under the best possible environment, which does not reflect the real issues prevailing under farmers' conditions.
8. At the time of independence the number of industries was limited; however, the industrialization of textile sector has enabled it to contribute a significant share to the export

sector. Huge loans were granted in the name of Livestock industry; however these led to defaults which are frequently reported in the print and electronic media.

9. If the present government allows the poor people to get resources for developing their livestock holdings into viable entrepreneurs, and develop new ones, it would be leaving a good impact on the future of the province and performance of the present government.
10. Such steps would raise the people of the poverty and bring social, economic and political stability in this vulnerable province.
11. The people of the province have always welcomed change. An effort of the Federal Livestock and Dairy Development Board was successful in establishing fattening farms and about 5000 viable units were established. However, the government did not fulfill their commitment and amount of Rs.6.4 million due to be paid to the farmers was refused. It led to breaking of the Units and herds of the farmers. As a member of the Board I was disappointed and pulled away from it; however, on request of Prof M Subhan Qureshi I have come back again to share my feelings with you.
12. An international Halal meat market is dealing with a trade of US\$ 635; does our province involved in meat production does not deserve to get its due share of 10%? Halal Industry Park has been established at Faisalabad; and no body at top level in the province is noticing the Dairy Science Park established here in this province.
13. A Muslim consumer in any part of the world would be pleased to get Halal meat with Peshawar label; and a farmer in KP would get due return for his/her investment in such case. We can easily make this dream true through joint efforts. The roadmap of the Dairy Science Park focusing at graduates' entrepreneurship to be supported by the University, the government and the Chamber of Commerce and Industry seems to be a feasible step to harvest the future.

C. ANIMAL HEALTH COVERAGE

1. Prof. Dr. Khushi Muhammad, Chairman, Department of Microbiology, University of Veterinary and Animal Sciences, Lahore was kind enough to provide recommendations for this section, reproduced as follows.
2. There are various types of infectious diseases that are highly detrimental for dairy industry. For last many years, dairy animals are being imported without proper planning and ignoring the L&DD Pakistan policy that has resulted in occurrence of many diseases causing heavy economic loss to newly developed dairy farms. The infectious problems are Foot and Mouth Disease, Hemorrhagic Septicemia, Hemoparasites, brucellosis, Congo virus, etc. On account of these, diseases, some of the farmers are out of dairy farm business.
3. Foot and mouth disease (FMD) causes high morbidity (50-80%) in dairy animals and high mortality (50-80%) only in young calves in addition to reduced milk production, weight gain, working efficiency, skins/hides quality, and abortions, mortality in young calves, treatment cost and trade embargo. In this way, total loss only due to the FMD is more than Rs 4 billion/ annum. Currently, Veterinary Research Institutes (VRIs) at Lahore, Punjab and Peshawar, KPK, and UVAS, Lahore are producing approximately 2 million doses of FMD vaccine. Infrastructure (Flow) of the

above mentioned institutes is more suitable for research purposes rather than vaccine production.

4. There are many diseases against which vaccines are not being produced in the country. Government is therefore required to make necessary arrangements to provide funds to researchers in research or teaching institutes for isolation and molecular characterization of locally prevailing pathogens, evaluation of their immunogenicity (HACCP, BMR, SOP, etc), and training of technical man-power for production and evaluation of the vaccines. Government may encourage private sector for the development of biologics production units and vaccine production for commercial purposes.
5. The private biologics production units may be directed to get their units accredited from Pakistan National Accreditation Council (PNAC) and Ministry of Health. The accreditation must be essential for production of vaccines according to international standards.
6. In UVAS, it has been observed that total cost for one dose of FMD containing immunogen against "O", "A" and "Asia-1" serotypes of FMD virus and *Pasteurella multocida* (cause of HS) is not more than Rs 30. The cost includes technical cost, depreciation cost of building and equipment, marketing cost. The market price of local market is rupees 50 while the cost of one dose of imported FMD vaccine of the same quality is more than Rs 150. Vaccine production is highly profitable entrepreneurship so private sector may come forward to support livestock production. Local vaccines shall be prepared using locally prevailing pathogens so shall be more effective to control the diseases.
7. The efficiency of the available diagnostic laboratories may be strengthened and accredited for diagnosing every infectious disease through advances, reliable, quicker and cheaper technologies. A strong and effective coordination with the sister labs, national and international organizations may be ensured.

D. MINISTERS DIRECTIVE AND IMPLEMENTATION

In pursuance to the directive of the worthy Minister for Agriculture and Information Technology during his visit to the University, a meeting of the Mr Ahmad Said, Chief Planning Officer, Dr Sher Muhammad Director General Livestock and Dairy Development and Prof M Subhan Qureshi Dean FAHVS, the University of Agriculture Peshawar was held on 26-10-2013 to discuss implementation strategy for the directive. The participants agreed on:

1. Introducing the business setup by the University graduates in broilers, quails, turkeys and ruminants farming, etc., and seeking the SMEDA support in developing the business further utilizing the latest techniques.
2. Inviting the KPCCI representatives to consider such enterprises for further investment, especially in establishing slaughtering facilities.
3. Launching research at the University on commercial aspects of the meat production and quality control, making the production system competitive at the international markets.
4. Establishing a mini-slaughter house at the University for graduate teaching and launching of postgraduate diploma courses livestock entrepreneurship.

5. Utilizing the resources, skills and knowledge available at the University and the L&DD Department for developing the private sector, enabling expansion and introducing quality control in the production and marketing chain.
6. Supporting the outgoing University graduates during their six-months mandatory internship as prescribed under the Pakistan Veterinary Medical Council Act 1996 through a joint project of the University and the L&DD Department.
7. Providing an enabling environment for establishing a private company by the Department and slaughter houses in the private sector.
8. Utilizing information technology in linking the enterprises effectively with the Department, the University, services/inputs providers and the International Halal meat market.
9. Holding 2nd International Workshop on Dairy Science Park, November 18-20, 2013, at the University in which the public and private sector and the Universities would be participating.

E. CONSULTATION WITH SMEDA

A meeting of the University team headed by the Dean and SMEDA/private sector was held on 28-10-2013 at 11:00 am at SMEDA office. The meeting started with the recitation of Holy Quran by Dr. Sarzamin Khan and chaired by Rashid Aman (manager). The following recommendations were made:

1. SMEDA will sponsor a 2 days trainings workshops for the final year DVM outgoing students to equip them on methodologies how to run and handle business. This will be jointly supported by The University of Agriculture and Livestock and Dairy Development Department.
2. The University will invite their graduates involved in livestock related businesses. SMEDA, DG L&DD and the University experts will evaluate their enterprises and help in developing their business into proper SMEs.
3. Business security shall be ensured to smoothly run all type projects. Proper legislative framework will be prepared through wide-based consultation of all stakeholders so that the interventions by various agencies may be minimized in running successful livestock and poultry based businesses.
4. The upcoming work plan of SMEDA will be examined by the University authorities for contributing their share in the development process.
5. The Dairy Science Park will be supplemented with a mega exhibition highlighting all the success stories generated at the University, the L&DD Department and the private sector. Private industry will be approached to showcase their products/machinery etc in the DSP, 2013 to attract local investors and students for investment. It was greatly felt that a world class EXPO centre should be established by the provincial government to arrange mega events of livestock and poultry exhibition in the future to attract foreign investors.

6. A model Slaughter House shall be established fully equipped with modern facilities in consultation with the owner/contractors of the already established slaughter houses in the region. Special protocols and other monitoring policies will be devised to fully eradicate health threats to the consumers' health.
7. Investment cell of Chief Minister Secretariat will be briefed about these business plans for funding to unemployed young graduates.
8. A working group will be constituted represented by SMEDA, L&DD, UAP and KPCCI to promote the self employment models in the province.
9. It was also decided that a presentation will be made to the Working Group to the President Zahidullah Shinwari on next Thursday, the 31-10-2013 at 1100 hours in the head office of KPCCI. The also desired that the provincial government may be represented for making the consultation more effective.

F. PRESENTATION AT KPCCI

Pursuant to directive of the Minister for Agriculture and a meeting with the Chief Planning Officer and Director General, Livestock and Dairy Development Department, a meeting of Faculty of Animal Husbandry and Veterinary Sciences/SMEDA was held on 31st October, 2013 in the Khyber Pakhtunkhwa Chamber of Commerce and Industries with the President and member of KPCCI and private sector, chaired by the President, Mr Zahidullah Shinwari. The following decisions were made:

1. It was agreed that this sector should further be strengthened through constitution of a Standing Committee on Livestock at the Chamber.
2. The Committee will advise the government for devising legal framework supporting and protecting new investment in the sector.
3. The Committee will also advise the Chamber in developing graduate entrepreneurs in livestock and poultry production, commercial research, value addition and quality control.
4. The Committee will make liaison with the provincial and federal governments and other national and international organizations in creating resources for supporting such entrepreneurs.
5. Friendly countries will be approached for business development and trade in this area. A one window operation will be initiated in collaboration with the University of Agriculture and SMEDA, at the Chamber for supporting livestock and poultry related business models.
6. The President supported the proposal of the Dean for establishing an internationally accredited quality control setup at the University supported with commercial research, for local consumption and export certification of livestock and poultry products.
7. The President invited the University to play a role in the Prime Minister's Youth Development program. For entering International Halal Meat Market, we will have to ensure cost-effectiveness and quality standards of the products. He ensured the support of the Chamber for achieving these goals.

8. It was suggested that UNIDO may support in establishing such labs for which the Chamber will have to endorse this proposal.
9. This Skill Development Programs would be utilized for human resource development.
10. The President suggested a Halal Certification Board for boosting export in meat and dairy sectors.
11. Dr Asif recommended establishing livestock and poultry farming throughout the province under graduate entrepreneurship for which the support of the provincial and federal governments would be required.
12. He also suggested an Expo Center at the province to boost the local industry.
13. The Dean invited the President and other members of the Chamber to attend the Dairy Science Park 2013, falling on November 18-20 and to invite business firms to display their products and services in livestock, poultry and allied sectors, through stalls. The senior executives attended the meeting; however the products display could not be made during the conference.

G. RECOMMENDATIONS OF DSP-2011

Business support

The Higher Education Commission of Pakistan has introduced the Business Incubation which is a business support process that accelerates the successful development of start-up and fledging companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its framework of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies.

1. promote the commercial research culture through the strong venture of university-industry Tag.
2. boost the economic development by verge of Industrial Research output.
3. foster the formation and development of start-up businesses to the point of obtaining significant, third-party investment support.
4. educate startup companies/entrepreneur about the process of new venture development to improve their potential for future entrepreneurial success.
5. create an entrepreneurial community to give students the experience of learning through mutual support, a process critical for successful entrepreneurship.
6. The Faculty of Animal Husbandry and Veterinary Science has worked in this direction through several programs. Broilers and quails production has been in practice for meeting the requirements of consumers at the Greater University Campus. Dairy Technology Center and Feed Mill have been run on sustainable basis for boosting the dairy enterprises in the accessible areas. The Dairy Herd Improvement Program of the Veterinary Clinics has linked private dairy farmers with the faculty.
7. The semi-commercial activities of the faculty will be pulled under Dairy Science Park at Agricultural University Peshawar, in line with the idea generated in Egypt during conversation between Prof M Subhan Qureshi, Chief Organizer IW-DSP, 2011 and Mr Abdur Rahman Ilyas,

ICRISAT, India. The enterprises owned by the the business partners will be affiliated with the park as model enterprises for technology application and further replication.

8. Private sector will be encouraged and attracted to invest in livestock and dairy sector by providing them conducive environment and relief in policies. Government shall extend special benefits in terms of electricity charges, provision of barren land on lease basis and taxation etc, to all types of relevant enterprises.
9. Financing partners will be provided for the program through local institutions. International investment will be explored through foreign missions, especially the Middle East, Malaysia, Turkey, Iran and other friendly countries. The Khyber Pakhtunkhwa Chambers of Commerce and Industries will look for partnership with similar bodies in the rest of Pakistan and the friendly countries.
10. Creating an information system for all sorts of livestock activities to update farmers about market, institutions and other facilities available to them.

Infrastructural support

1. Establishment of salvage farms for rearing and caring of dry animal and to prevent them from slaughtering to maintain the genetic pool of best breeds of livestock population
2. Establishment of model dairy farms for extension, research and business demonstration purposes at regional level under partnership with the private sector
3. Establishment of modern slaughter houses with advance facilities to ensure the production of quality meat to the consumers and to be used for research purposes targeted at meat industry expansion and provision of **HALAL MEAT** to the entire Muslim community. The first model will be established at Agricultural University, Peshawar.

Legislative and policy support

1. Reviving the existing livestock policy and making a new policy compatible with local environment. Regulating the livestock production system for incorporating environmental, economic and public health concerns. Revising pricing policy for livestock and dairy products in accordance with input and output expenses in the business
2. Quality control systems shall be introduced and standards shall be defined for milk, meat and by-products to certify for entry into local and international markets. Quality control shall be introduced in milk and meat marketing.
3. New legislation shall be made to overcome problems associated with exporting livestock and dairy products
4. Devising and strict implementation of policies to control the smuggling of livestock across border to Afghanistan and other countries.
5. Periodic livestock census should be conducted to generate valid data and make right decision accordingly.
6. Regulating the slaughtering of animals to prevent the losses of potential animals, especially under-age and pregnant animals and to address public health concerns by rejecting animals carrying zoonotic risks.
7. Current marketing system is outdated and need to be re-structured and re-organized. This requires a detail analysis of the present marketing system to make it producers' and consumers' friendly and attract new investments. The income coming out of the slaughter houses and cattle market shall be spent on the business support initiatives proposed under this draft.

Animal production support

1. Integration of the four pillars into development strategy, i.e. 1) Genetics 2) Nutrition 3) Management 4) Health.
2. Local breed improvement programs should be launched and collaborated with other provinces. A provincial nucleus of different breeds of dairy animal should be established to improve their production potential and to conserve them through advance techniques. Achai conservation activities may be linked with research setup for meaningful data analysis and strategy development.
3. Camel has got extraordinary potentials to produce milk. This milk has been narrated as a panacea for different human diseases in Hadith. This miraculous milk should be investigated in modern scientific ways to be used as a good source of income and medicine.
4. Azikhili Buffaloes, a well known breed of the province has got wonderful features and milk producing potentials. It is warranted to deeply investigate their genetic make-up to fully exploit its milk production potentials and adoptability to the local climate.
5. Farmers must be educated to raise dairy goats (beetle) and sheep (damani) who are unable to raise cows and buffaloes due their rearing cost.
6. Nutritional status of livestock in the province should be improved by promoting high yielding and nutritive fodders and improving pastures conditions for grazing livestock.
7. Establishment of silos (for silage making) at commercial level to ensure the availability of feed for livestock throughout the year at affordable prices for both commercial and non-commercial farmers
8. Research work is needed to examine non-conventional feed resources in dairy animals to control and reduce high feed costs and to generate more income

Animal health support

1. Developing and testing locally produced medicines and vaccines to reduce health related costs and to create new employment opportunities.
2. The potential benefits of herbs in veterinary medicine shall be exploited on modern scientific basis to ensure safe end products for consumers.
3. Vaccine production shall be supported for qualitative and quantitative improvement against foot and against locally prevalent diseases and considered for export through incorporation of international standard.
4. Modern biotechnological techniques shall be used to minimize the reproduction and production losses in the dairy industry.
5. Efforts shall be made to investigate and minimize all sorts of stresses, especially heat stress to improve reproduction in dairy animals. Different approaches must be undertaken (nutritional and environmental) to cope with high heat stress during summer temperatures and production stress in the genetically improved animals.
6. Alternative and easy methods/tests shall be developed for minimizing losses in productivity and fertility e.g. newly emerging methods of early pregnancy.

Environment and energy solutions

1. Environment related issues should also be focused before launching any big dairy project to keep our environment safe.
2. Renewable energy solutions may be introduced for safety of environment and self sufficiency in energy production.

Institutional strengthening and Coordination

1. Various institutions in the public and private sectors are working to support the livestock related activities, however the coordination is not very affective. The major stakeholders namely academia, research, extension, civil society and industry must join hands for collaborating their activities and sharing information and resources for achieving the common goal of supporting the livestock sector to play its due role in food security and income generation. A working committee may be assigned this task.
2. An interactive forum for discussing the major issues to develop, update and implement a comprehensive policy for the development of the industry, is required. It may be mandated for frequent exchange and dissemination of information among different segments of livestock sector through successful organization of workshops, conferences and seminars.
3. Researchers and institutions need to be facilitated and strengthened to promote quality research and resolve problems of dairy sector. International standards shall be incorporated in the research system. Career development of the scientists for better delivery of services is required.
4. Creating new and re-organizing the existing extension system to provide facilities to farmers at their door steps. Extensive involvement of the extension officers in the development process.
5. Training of livestock workers, researchers and other scientist to cope with the new challenges of modern livestock and dairy sector. Short training courses for livestock farmers and school and college students (during summer vacations) in the rural areas.
6. Establishment of ISO standard laboratories to assess the quality of feed, water, drugs and other inputs for consumption by livestock and analysis of livestock products for fitness for human consumption. Devising on farm tests to check feed and water quality.
7. The ITAC Cell at the KPCCI will be assigned the task of livestock business support and linkages with the University, Livestock and Dairy Development Departments, (Extension and Research) and SMEDA. Effective linkage of the cell with other CCIs and financing agencies.
8. Incorporating the internship concept into the work plans of all relevant organizations for career development of the outgoing graduates and producing quality manpower for boosting the national economy through jobs finding in the local industry and abroad.

Business Support Plan

A committee of the Faculty of Animal Husbandry and Veterinary Sciences, working on the recommendations of the Dairy Science Park 2013 held a meeting under Prof Dr M Subhan Qureshi, Dean/Chief Organizer DSP, attending by Prof Sohail Akhtar, Prof Nazir Ahmad, Prof Sarzamin Khan, Dr Umer Sadique, Dr Naila Imtiaz and Dr Abdur Rahman along with the senior officers. Dr Faisal Khan, Entrepreneurship specialist from Oxford University and Mr Waqar Khattak, banking expert also attended the meeting.

The draft recommendation prepared during the eight sessions of DSP were discussed for refinement and for devising implementation strategy. It was suggested that the farmers and graduate in this province need to be exposed to successful enterprises through study tours to observe the good practices in various parts of the country. The Dean was confident that the province is not lacking shortage of trained and skilled manpower, livestock animals and poultry, farming families, young enthusiastic graduates and willing investors; however, a mechanism for managing these resources efficiently and wisely has been lacking. The DSP has provided this mechanism and the Standing Committee on Livestock (SCL) and Business Support Desk (BSD) at the Chamber of Commerce and Industry (KPCCI) are the fora for making this dream true.

Prof Sarzamin Khan presented a review of the farming clusters by our graduates and trained man and women as a result of training under the sponsorship of SRSP and other donors. Satisfactory operations of these operations were awaiting establishment of additional facilities like slaughtering, cold storage and transportation, which is beyond the capacity of these farmers; and need new investments. SMEDA FAHVS Peshawar has established a working group on livestock (WGL) which is looking for feasible models in livestock and poultry production and marketing and the willing graduates are being guided in entering into such schemes. The existing willing farmers will be supported in giving a formal shape to their business through skill development, scientific and marketing support. Successful models will be replicated in other parts of the province.

The SCL will work on identifying special economic zones in the province for introducing specialized SME's. The successful SMEs will be further evaluated for their strength and feasibility and passed through business incubation centers (BIC) at the University of Agriculture Peshawar, Farm Services Centers, Amir Muhammad Khan Campus Mardan or other sites. These will be replicated in the targeted zones through three modes: i) converting existing farming and marketing setup into viable entrepreneurs or; ii) establishing new graduate entrepreneurs. Standard operating procedures will be practiced for cost effective productivity and quality control of inputs and products.

The University of Agriculture Peshawar will support the entrepreneurs through launching commercial research and introduction of quality control standards. The analytical and research setup will be strengthened through addition of equipment and international accreditation, training and construction of teaching, research and business support infrastructure. Farmers' welfare centers will provide local solutions to the entrepreneurs in disease diagnosis and health coverage, applied research, inputs

supplies and products procurement. A model slaughter house will provide teaching, research and training facility to the students, trainees, farmers and technicians. The contract farmers and butchers will get benefitted of this facility. A food safety laboratory will help in analyzing the livestock products as a human dietary and in certification of products for export.

Recommendation Committee

1. Prof. Dr. Zahoor Ahmad Swati, Dean FCPS (Convener)
2. Prof. Dr. M. Subhan Qureshi, Dean FAHVSC (Secretary)
3. Prof. Dr. Muhammad Jamal Khan, WAMA, AUP
4. Prof. Dr Farhatullah, PBG, AUP
5. Prof. Dr. Sohail Akhter, LM, AUP
6. Prof. Dr. Jamal Khattak, SS, AUP
7. Prof. Dr. Nazir Ahmad, AN, AUP
8. Prof. Dr. Sarzamin Khan, PS, AUP
9. Prof. Dr. Shahnaz Akhtar Arifullah
10. Mr. Rizwan Ahmad, P&D, AUP
11. Dr. Umer Sadique, AH, AUP
12. Prof. Dr. Nazir Ahmed, AN, AUP
13. Mr. Rashid Aman, SMEDA/KPCCI
14. Dr. Rajwali Khan, LR&D/VRI
15. Dr Asal Khan L&DD

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1. Dr. Abdur Rehman, LM, AUP
2. Mr Waqar Khattak, IBMS
3. Dr Ihsanullah, LM
4. Dr. Zahoor UI Hassan AH, AUP
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7. Dr. Naila Imtiaz PS, AUP
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10. Dr. Shoaib Sultan, AN, AUP