

WORKSHOP PROCEEDINGS

# Landless Mobile Pastoralists

SECURING THEIR ROLE AS CUSTODIANS OF NORTHERN  
PAKISTAN'S MOUNTAINS

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# List of Acronyms

AD	Agriculture Department
AJK	Azad Jammu and Kashmir
AnGR	Animal Genetic Resources
ASF	Agribusiness Support Fund
ATV	A Pakistani TV Channel
AZRI	Arid Zone Research Institute
CBD	Convention on Biological Diversity
CCF	Chief Conservator Forests
CCW	Chief Conservator Wildlife
CDE	Centre for Development and Environment, University of Bern
CF	Conservator of Forests
CPS	Cell on Pasture Studies
CSRS	Centre Suisse de Recherche Scientifique
CTA	Chief Technical Adviser
CW	Conservator Wildlife
DES	Department of Environmental Sciences
DL&DD	Department of Livestock and Dairy Development
FATA	Federally Administered Tribal Areas
FD	Forest Department
FRESH	Foundation for Research and Socio-Ecological Harmony
FUB	Freie Universität Berlin
GDP	Gross Development Product
GoKP	Government of Khyber Pakhtunkhwa
GoP	Government of Pakistan
HH	Household
HKH	Hindukush Karakorum Himalaya
ICIMOD	International Centre for Integrated Mountain Development
IGF	Inspector General of Forests
IUCN	International Union for Conservation of Nature
KP	Khyber Pakhtunkhwa
KG	Kindergarten
LMP	Landless Mobile Pastoralist
LPRP	Landless Pastoralist Research Project
MoCC	Ministry of Climate Change
NARC	National Agriculture Research Centre
NGO	Non-governmental Organization
NIGAB	National Institute of Genomics and Advanced Biotechnology
NUML	National University of Modern Languages
OUCE	Oxford University Centre for the Environment
PARC	Pakistan Agriculture Research Council
PDMA	Provincial Disaster Management Authority
PFI	Pakistan Forest Institute
PMAC	Program for Mountain Areas Conservation
PPC	Pakistan Penal Code
PTV	Pakistan Television Corporation
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDC	Swiss Agency for Development and Cooperation
SLMP	Sustainable Land Management Project
SNSF	Swiss National Science Foundation
UVAS	University of Veterinary and Animal Sciences, Lahore
UCA	University of Central Asia
UNESCO	United Nations Educational Scientific and Cultural Organization
UoL	University of Lanzhou
UoP	University of Peshawar
W&NPD	Wildlife and National Parks Department
WD	Wildlife Department
WWF	Worldwide Fund for Nature
ZKF	Zarif Khan Foundation



Herders on the move to uplands.

For centuries, the Landless Mobile Pastoralists (LMP), or “Ajars”, have produced milk, meat and wool, and have maintained biodiversity and mountain landscapes in the Khyber Pakhtunkhwa (KP) province of Northern Pakistan. The provision of these goods and services is at risk as these pastoralists are becoming increasingly marginalised. Their bargaining power at markets is weakening, their mobility is hindered by tree plantation campaigns and hillside privatizations –both of which obstruct their transhumance routes –and their traditional upland pastures are encroached upon by off-season cash cropping.

The Landless Pastoralist Research Project (LPRP) is a three-year project that is part of the Climate Change Adaptation programme of the National Centres of Competence in Research North-South (NCCR North-South), and is funded by the Swiss National Science Foundation (SNSF) and the Swiss Agency for Development and Cooperation (SDC). The LPRP is the first research project to produce an in-depth analysis of the current living conditions of the LMPs in Northern Pakistan. The workshop on “Landless Mobile Pastoralists: Securing their Role as Custodians of Northern Pakistan’s Mountains” raised the attention given to the crucial role these marginalised herders play, both for society at large and for the environment. The discussion included ways of securing the LMPs’ livelihoods and their roles as custodians of Northern Pakistan’s mountains. The Foundation for Research and Socio-Ecological Harmony (FRESH) implemented the LPRP in 2009. The workshop included both invited presentations and extended discussions to ascertain the issues that bear on the LMPs, pasture sustainability, and the problem of adaptation among various disciplines and stakeholders. This proceeding compiles the content of the presentations, working groups’ discussions, and formulated policy recommendations. It also includes the two main measures adopted by the government of Khyber Pakhtunkhwa (Secretary of Agriculture) and the Vice Chancellor of Peshawar University as a result of this workshop.

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## LPRP Objectives

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The LPRP documented and addressed the following hindrances endured by the LMPs in the Hindukush-Himalayas that directly affects their livelihood, livestock production system and the sustainability of pastures:

- Impediments to their mobility routes
- Insecurity of pastures’ use tenure
- Unawareness of the importance they play for conservation initiatives
- Lack of access to veterinary, health, education and legal services
- Limited control of the marketing of their livestock
- Non recognition of their contribution towards the national economy
- Social and economic marginalization

# Introduction



Participants registration.

## Workshop Objectives

The workshop objectives were to:

- Present research findings and help disseminate key policy messages and recommendations to a broad and concerned audience
- Give space for consultation between landless pastoralists, landowners and other relevant stakeholders
- Create awareness of the ecological, cultural, social and economic issues and potentials related to the transhumant systems of LMPs in Northern Pakistan
- Prepare the ground for creating an institutional unit within the DL&DD to address the issues of transhumant systems and to provide support to the landless pastoralists through appropriate development, conservation and research programs
- Discuss the continuation of the LPRP with regard to development, implementation and further research

## Workshop Stakeholders

The participants of the workshop included the primary stakeholders of the LPRP's research; namely, the LMPs and the landlords with whom LMPs negotiate their access to pastures. The following Pakistani and foreign universities, research institutions, and governmental and non-governmental Pakistani and foreign organizations were represented:

- Agriculture Department, Khyber Pakhtunkhwa (AD-KP)
- Centre for Development and Environment, University of Bern (CDE)
- Department of Environmental Sciences, University of Peshawar (DES-UoP)
- Department of Livestock and Dairy Development, Khyber Pakhtunkhwa (DL&DD-KP)
- Forest Department, Khyber Pakhtunkhwa (FD-KP)
- Foundation for Research and Socio-Ecological Harmony (FRESH)
- Freie Universität Berlin (FUB)
- International Union for Conservation of Nature (IUCN)
- International Centre for Integrated Mountain Development, Islamabad (ICIMOD),
- Ministry of Climate Change (MoCC)
- National Agriculture Research Centre, Islamabad (NARC)
- Pakistan Agriculture Research Council (PARC)
- Program for Mountain Areas Conservation, Islamabad (PMAC)
- Provincial Disaster Management Authority, Khyber Pakhtunkhwa (PDMA-KP)
- Sustainable Land Management Project, Islamabad (SLMP)
- University of Central Asia (UCA)
- University of Lanzhou (UoL)
- University of Peshawar (UoP)
- University of Veterinary and Animal Sciences, Lahore (UVAS)
- Wildlife Department, Khyber Pakhtunkhwa (WD-KP)
- Wildlife and National Parks Department, Azad Jammu and Kashmir (W&NPD-AJK)
- Worldwide Fund for Conservation of Nature (WWF)
- Zarif Khan Foundation (ZKF)



Inaugural session.



Prof. Dr. Talat Naseer Pasha chairing the session related to local perspective on pastoralism.



Mr. Naveed Salimi

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## Workshop Programme

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Prof. Dr. Noor Jehan

The workshop was organized with the help of three hosts (stakeholders): DES-UoP, DL&DD-KP and NARC. The NARC campus in Islamabad acted as the venue on 24-26 April, 2012.

The first day of the workshop had three sessions. The first session was the inaugural session and the workshop was opened by Mr. Naveed Salimi, the PARC chairman. The three hosts presented their welcome address (Dr. Noor Jahan, Chairperson DES-UoP; Dr. Sher Muhammad, Director General DL&DD-KP; Dr. Rafique ul Hasan Usmani, Member Animal Sciences, PARC) and they highlighted the importance of the workshop and its objectives. They appreciated the intellectual exchange between LPRP and the host organizers and expressed their intention of having more collaboration in the future.



Dr. Sher Mohammad

The workshop sponsors, Dr. Inam ur Rahim, FRESH, described the LPRP and its achievements, and Dr. Henri Rueff advanced the context of the workshop with respect to different session presentations in light of the findings of LPRP. Pakistan's context of LMP policy was then briefly outlined by Dr. Syed Mahmood Nasir, Inspector General Forest. Dr. Muhammad Sharif, Director General NARC, offered a vote of thanks at the end of the first session. The inaugural session screened a 20-minute documentary video exhibiting the livelihood issues listed above.

In his inaugural address Mr. Naveed Salimi said that pastures in Pakistan comprise 66% of the surface area that is disturbed. The pastures are self-generating and self-maintaining vegetation that are used for grazing by domestic goats/sheep and wildlife. They are part of all major ecosystems in Pakistan, including mountains, high forest, scrub forest, deserts, riparian and wet lands. It will be difficult to meet the growing challenges of climate change's effects on food security and other economic dependence without recognizing and evaluating the important role of the pastoralist communities in ecosystem management and sustainable utilization of forest and range resources. Mr. Salimi appreciated the increased interest in this important, but largely neglected, area of research. PARC and NARC are ready for all possible support and partnership at every level in order to research the issues of pastoralists and mountains, as well as advancing policy recommendations.



Dr. R.H. Usmani

Dr. Ruijun Long chaired the second session of the first day. International perspectives on pastoralism and rangeland management were presented from Europe, South Asia, Central Asia, China, Afghanistan, and the Hindukush-Karakoram region. In the last session of the first day, which was chaired by Professor Talat Naseer Pasha, Vice Chancellor, UVAS-Lahore, the local perspective on pastoralism and rangeland issues was presented in the wake of the implementation of the LPRP in the Malakand and Hazara mountain regions.



Ashiq Ahmad Khan

The second day of the workshop was allocated for participant visits to lowland LMPs settlements in the Haripur District of Hazara region. The third day had three sessions. The first session was chaired by Syed Mahmood Nasir, wherein the LMPs' representatives presented their issues and interacted with various stakeholders. The second session was for group work and presentations of findings, and was chaired by Mr. Ashiq Ahmad Khan. Each group was formed on specific topics and formulated recommendations. The final session of the day was the wrap-up and closing of the workshop. This was chaired by Mr. Afsar Khan, Secretary of Agriculture Government of Khyber Pakhtunkhwa, and co-chaired by Dr. Qibla Ayaz, the Vice Chancellor of UoP. This session screened a documentary showing the Pakistan-Afghanistan trans-boundary migration and the culture of the Kochis, another LMP's group.

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### International Perspective

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#### **Sustainable Pasture Management in the Swiss Alps by Dr. Daniel Maselli, CDE and SDC**



Dr. Daniel Maselli

The principle of sustainability is that pressure cannot be increased continuously through the addition of more animals, which will receive less food, and therefore produce less. In the Swiss Alps, the lowlands below the summer pastures in all valleys are privately owned, while all summer pastures are common property with rights and duties. It is not these summer pastures, but rather the lowlands that determine the number of animals because winter is a bottle neck; if animals can be fed in winter they can be fed in summer. This is where the sustainability issue starts.

To manage the animals in summer pastures the cow right-holders hire a responsible manager and his helpers to look after, feed and protect the animals, milk cows and produce cheese and other products. The remuneration to them is shared in kind, cash, or both. Each cow is assessed over the whole summer and this provides the basis for the distribution of cheese at the end of summer.

A striking and centuries old example of sustainable pasture management in the Swiss Alps is Grindelwald. In the year 1404, a small number of people settled in the valley and recognized that they could not increase their livestock as they wanted and that they needed limits. They signed a pact amongst themselves to this effect, which also involved local religious leaders to strengthen emotional and religious bonds. It was agreed that the animals from the winter lowland will not increase and also livestock from outside the valley would not graze in the summer pastures of Grindelwald or they would compromise the system's sustainability. These two key rules are still enforced today.

This community has sustained 2170 cow-rights, at a maximum, for more than six centuries, and with a high productivity of milk and cheese. Innovations with a variety of tourism activities have created many income sources without harming the pastures. Recently, the valley has been declared a 'UNESCO World Heritage Site'. Besides the tourism, keeping alive the traditional pastoral system and the ecosystem services have their own financial reward from the government as subsidies.

#### **The 'One Health' Concept in Human and Livestock health by Dr. Henri Rueff, OUCE and CDE, on behalf of Prof. Bassirou Bonfoh, CSRS**



Dr. Henri Rueff

Donors prioritizing their health aid in developing countries largely underestimate the role of livestock in contaminating humans. Livestock born diseases contaminate more humans than HIV, malaria and tuberculosis together. Vaccination campaigns for animals could be easily coordinated with that for humans, especially in nomadic societies living in remote areas. Costs could be saved in that the logistics in place to campaign for the former could be used for the latter (transportation, refrigeration systems for preserving vaccines), saving at least 15% of the costs, besides being effective.

Kyrgyzstan has one of the highest rate of brucellosis incidence, and the annual losses to public health and livestock have been estimated at \$15 million. Representative and cross-sectional studies on the sero-prevalence of brucellosis in humans (1800), cattle, sheep and goats (5369), with the cooperation between public health and veterinary partners and capacity building, showed that mass vaccination campaigns reaching coverage of at least 80% is cost-effective to reduce the transmission of brucellosis, and thus the incidence in humans if combined with public awareness. If less than 1% of livestock is affected, mass vaccination can be replaced by restricting vaccination to young replacement animals. For control of human infections of brucellosis, education on the safe handling of animals and their products can considerably reduce the number of trans-

missions. Brucellosis is induced in humans mostly from the use of livestock products. Its control through mass livestock vaccination is profitable for the whole society in Central Asian countries.

### **Enabling Policies for Rangeland Management and Pastoral Development in Hindu Kush by Muhammad Ismail, ICIMOD**



Muhammad Ismail

Pakistan has one of the largest rangeland cover (51.4%) of its area, which despite its greater importance has remained an issue not addressed in the policies of the country. The most glaring issue for rangeland policy in Pakistan and Afghanistan and other HKH countries is the 'land tenure' that generates conflicts between resident land owners, absentee owners, landless customary users, customary ownership and use rights and the statutory ownership and use rights.

ICIMOD is working with HKH countries, including Pakistan, for the last 15 years through participatory action research and regional rangeland program for rangeland management supportive policies. Rangeland law of Afghanistan is being reviewed; case studies on the impact of new land act on pastoral communities in Bhutan have been conducted. Case studies of rangeland tenures and phase policy recommendations in China and Environment Policy review for co-management have also been conducted by ICIMOD.

The principal thrust of the policy on rangeland sustainable management should include integration of ecological, social and economic aspects with climate change scenarios, enough incentives and space for pastoral community decision making and adaptive co-management, identifying best practices for the payment of ecosystem services with equitable benefits and responsibilities sharing, and a view to the emerging conflicts between conservation and development.

### **Pastoral Practices in the Hindu Kush – Karakorum Mountains – Structures and Transitions by Prof. Hermann Kreutzmann, FUB**



Prof. Hermann Kreutzmann

The LMPs are greatly neglected, which makes this project very timely. This neglect is not only about the blank spots or the problems faced by the LMPs, but also about the academic studies on pastoralism. Mobile pastoralism is about using different ecological zones in different areas of mountains, but one stereotypically uninformed diagram issued in academics for over 100 years has not incorporated the changes that occurred in the last 50 years of research. For example, the Perth conference on mountains, in preparation for the Rio Conference, prepared the document "Mountains as Common Global Good" without once mentioning pastures, pastoralists, or rangelands.

Nomadic systems face movement restrictions due to frontiers and shrinking spaces for pastoralists. The policy and legal ambiguity generate many disputes including access rights to pastures, property claims on pastures, and skewed market mechanism of livestock and their valuable products. Privatization of user rights in Central Asian republics is a big shift from communal government where they had the detached mountain pastoralism, yet they are now reverting to the previous classical pastoralism. Resettlement of herders in the new townships, under the modernization program in China, is guided by one consideration of the protection of nature under the auspices of global change. Similarly, the change of lifestyle of pastoralists is approached with the incentive of payments for ecosystem services in various mountains.

### **Changes in Pasture and Livestock Management in Central Asia by Dr. Daniel Maselli, CDE and SDC**



Dr. Daniel Maselli

During the Soviet regime in Central Asia, the best winter pastures were used for fodder crops. Artificial boundaries were created and large scale mobility routes were interrupted. Pasture management systems were regulated by technologies, new and intensive use of summer pastures with large scale infrastructure, and the introduction of efficient veterinary and breeding services.

After the Soviet regime dwindled, there was a sharp drop in animal numbers. Herding was a sole source of livelihood for many, even for those unaccustomed to the activity. Hence, herd sizes were small and grazed near the villages, without any means to use distant pastures. This resulted in the overgrazing of pastures near villages and the under grazing of distant pastures.

A new pasture law (2010) was enforced and has generated substantial changes. Today, rangelands are managed through pasture-user committees. However, their efficiency remains to be seen due to the inexperience of many of them. A "Herders' Manual" has therefore been created for Kyrgyzstan, and that may follow for Tajikistan soon in order to disseminate best herding and pasture management practices among communities. The information gathered in the manual has been provided by herders and for herders.

Another initiative was the development of a new communication tool, called "pastoral information system," consisting of the monthly publishing of a newspaper targeting pastoral communities and rural people. This has facilitated their participation in preparing new laws, reactions, and raising their voices and concerns.

### **Afghan Kochi Nomads by Abid Zareef Khan, ZKF**



Abid Zareef Khan

"Kochi" in Persian and Urdu means "Mobile". This community is the sub-tribe of the Ghilji Pakhtun Tribe with a population of 5 to 6 million in Pakistan and Afghanistan. Most of them have dual citizenship. They move within Pakistan from Pishin in Balochistan, all along FATA, and right up to Bajawar. They have a substantial contribution towards Pakistan's economy, producing mutton, beef, hides, wool and physical labor in many cities.

Their pastoral area and mobility area has been reduced and highly disturbed by the situation along the Pakistani-Afghani border. They have no access to human health and veterinary services in both countries. They have become mechanics, artisans, and crop harvesters to help resident farmers and traders. Trade has been a main activity, as they sold door-to-door fabrics and other utility items, sometimes at a credit. Peshawar still has an old bazaar, named the Kochi Bazaar. Many western, Indian and Pakistani movies, novels and songs depict their culture. The movie 'The Caravan' won an Oscar award in 1978. The Kochi dresses and jewelry has been and is still an inspiration for fashion designers worldwide. They are very respectful and also very good in adopting the culture of native people wherever they travel, including their languages. Kochis and other trans-boundary nomads are quality ambassadors and good at social relations in local communities in both Pakistan and Afghanistan.

### **Traditional and Modern Approaches to Improve Livelihood in Arid or Semi-Arid Regions of China by Prof. Ruijun Long, UoL**



Prof. Ruijun Long

China is 51% dry lands. The major livelihood challenges are food insecurity, fuel insecurity and income insecurity. To cope with these challenges several water technologies, have been developed, some including improvements on traditional techniques, such as rainwater harvesting, storing, plastic filming, stone/gravel mulching, greenhouse and family based biogas units.

Rain Water is collected from a piece of land, saved in water cellars and serves as the irrigation water for vegetables and fruits in backyards. Buildings' roof water is also collected. Water from roads and ditches is collected and used for irrigation as well.

Plastic film cover is used at the wet roots zone in the field and with crops like maize, potato, garlic, etc. that are grown in spite of the paltry rain of 120-300 mm per year. In this integrated arid farming system supported by water-saving techniques, double yields are obtained. The gravel/sand covered field technique has existed for 600 years, and produces watermelons and fruits. This technique is now also combined with plastic mesh for better crop production. The greenhouse technique is quite popular and used to produce vegetables and fruits as major income crops for local farmers and an effective technique for poverty reduction.

Pasture degradation in the alpine steppe in Alley are due to poor yak, sheep and goat herding management. The animals are not performing well and their numbers were reduced by half during the last 40 years. Sowing of pastures and establishing forage is being processed on this secondary bare land.

Alternative livelihood options are provided through the use of open meadows to raise chickens in grasshopper pest areas, and 50 chickens per hectare gives an income after three months. These are raised in the winter pastures of animals during summer, when the areas are empty of animals. These innovations lead to functional integrity management models of rangeland ecosystem in the Tibetan Plateau.

### **Pastoralism in Pakistan and International Context by Syed Mahmood Nasir, IGF Ministry of Climate Change**



Syed Mahmood Nasir

At the last Eid-ul-Azha Muslim festival, a large group of pastoralists who had travelled long distances were actually barred from entering Punjab and Islamabad. Behind this ban were the perceptions of Punjab forest officers implementing policies. Their perception is largely based on outdated range management science taught to them in Forest Colleges. Hence, policy perceptions of current research on pastoralism in Pakistan are unlikely to be well interpreted.

In the 15-20 year old Spanish legislation on nomadism, nomads have been given rights on their routes when they migrate in order to have night stopovers and land for grazing, whether private or state owned. One route passes through the parliament in Madrid, and the sessions of parliament are closed during their migration. The law also prohibits the government and private land owners from putting fruit orchards or agriculture on the specific routes during the migration season of the nomads. In Pakistan, the tendency is to plant saplings on their routes and to fine them if by mistake their animals graze on them.

Article 8(j) of the Convention on Biodiversity calls for respect for the traditional lifestyle of the indigenous communities. Some rangeland policy is in the process with the IGF office and PARC. More advocacy, support and research evidence has to be provided to influence the policy of pastoralism.

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### Local Perspective

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#### **Marketing System of Landless Pastoralists of Livestock in Northern Pakistan by Dr. Inam-ur-Rahim, FRESH**



Dr. Inam-ur-Rahim

The main markets for livestock of LMPs are in the lowlands where autumn sales are of high disposal after their return from summer pastures. The three main markets, trading a volume of 2000-4000 goat/sheep a week, are Nowshera, Taxila and Jamrud. The medium markets are Mingora, Dargai, Daggar, Havelian, Mansehra and Thakot, with a volume of 1000-2000 goat/sheep per week. Other small markets are spread all along the routes of the LMPs as local markets.

The market chain has an array of middleman, starting with mobile middleman who purchase some animals from herders en-route and sell them at local markets or to a retailer middleman. From local markets they are sold to wholesale middleman in medium markets, as well as in big markets.

The sale in the market is on a quantity and not on a quality basis, and the government controls the meat price, but not the animal price. If the meat was sold on a quality basis, the herders could raise quality, though less numerous, animals. The market premises has no facility for feed, water, shelter and loading-unloading for the animals or the herders, and that discourages the herders from keeping the animals longer in the market for better bargain prices. They are compelled to dispose of the animals at the earliest because going back to the camp is difficult for them, as the camps are far and also involve high additional expenses and work.

#### **Indigenous Animal Genetic Resources and their Status in the Mountains of Khyber Pakhtunkhwa by Dr. Muhammad Saleem, DL&DD**



Dr. Muhammad Saleem

LMPs in Northern Pakistan are the custodians of diverse animal genetic resources (AnGR) that help them meet their diverse needs. However, their diversity is decreasing because the focus is on one trait, like the production of meat or milk or wool, and not on diverse traits. The pastoralists then have the need of multi-purpose traits, fitting the prevailing environment and bio-physical resources and also to meet their multiple needs. They also require the kind of animals that can adapt to the changing climate.

In Khyber Pakhtunkhwa, Achai Cattle, Gabrali Cattle, Azakheli Buffalo, Kari Sheep, Kota Sheep, Hashtnagri Sheep, Kashmiri goat, Michni Sheep are a few examples of AnGR as multiple trait breeds and deserve attention for conservation.

The initial findings with all these breeds are that they have a comparatively small body size, they are adapted to mountain and steep terrain, and they have better reproductive performance. They have high fertility rates, short gestation length and are less susceptible to diseases. Better reproductive performance is the priority of LMPs as they depend more on the sale of animals than milk products. They subsist on roughage and poor quality forage, and are efficient converters of these roughages to milk and meat.

These breeds are however; subject to cross breeding with exotics and also to indiscriminate crossing. Some breeds, like Kari sheep and Azikheli buffaloes are exposed to inbreeding due to their diminishing population. Achai cattle and Azikheli buffaloes have been phenotypically characterized during LPRP, however; most of the other breeds need to be characterized and information about their demographic trends made available, so as to learn their sustainability for the livelihood of pastoralists. These animal genetic resources also warrant conservation under CBD, which Pakistan has rightly ratified.

### **Exploring Trekking Dynamics and Hindrances in Mobility of LMPs in Northern Pakistan by Wajid Rasheed, UoP**



Wajid Rasheed

Trekking routes and resting places are important components of the LMP pastoral system, because they serve as buffer zones that allow pastoralists to arrive in a timely manner at the uplands. However, these traditional routes and resting places have never been mapped. There is limited awareness about the trekking routes and resting places of the LMPs of Malakand and Hazara.

The larger and goat-dominant herds follow the mountain-based routes, and the smaller and sheep-dominant herds follow the highway-based trekking routes. The mountain routes have more browsing opportunities, and also have difficult terrain and are preferred for goats.

The highway based trekking routes have more hindrances, including the reduction and blockading of resting places and feeding opportunities. Pastoralists make quick journeys and they are compelled to arrive earlier to snow-covered and wet alpine pastures, causing their severe deterioration.

These hindrances are caused through reforestation campaigns of alien non-fodder trees along the trekking routes and around resting places, privatization of communal lands around the resting places and along the trekking routes and encroachment of settlements and cropping over the traditional resting places.

### **Implications of Upland Pastures Crops Encroachment for Landless Pastoralists by Mohammad Khurshid, DES-UoP**



Mohammad Khurshid

Thirty years back cash crop cultivation was introduced in the upland pastures of Kaghan valley. Plots of land are being tilled without terraces, which enhances high soil erosion rates. A study in 2010 estimated the rate of encroachment since 1985 and its impacts on herd size, herd composition and herding labor allocation patterns. Results show that cropping dependency, while renouncing herding, is substantial.

During this period crop encroachment not only extended horizontally to the interior of the Barawai valley towards higher elevation, but also extended vertically towards the hill slopes. After the gentle slopes in the valley bottom were no longer available, the encroachment extended toward steep slopes all along the valley. The possibilities of extension at gentle and medium slopes has already reached probably the ultimate elevation of 3500 meters above sea level, further extension is proceeding toward the steeper slopes throughout the length of the valley. The area encroached in different hamlets and time periods differs because of variation in availability of feasible land (soil depth and irrigation possibilities) at different locations. Road extensions are following the crop extensions.

Of the total 337.3 hectares of encroached pasture land, one third (108ha) is cropped beyond the permissible slope of nearly 16 degrees, and of this more than 30 hectares are tilled on very steep slopes of between 33 and 44 degrees. All these cultivations are without terracing.

Previously, in the summer, the valley bottom was utilized for cattle grazing. The Ajar (landless goat/sheep herders) and Afghan herders used to spend 30 days at an elevation of 2980-3300 meters for grazing on the hill slopes, and after 15 July they shifted further up to 4000 meters (snowline) for 60 days. The grazing restriction in and around the cropping lands have pushed the herders to spend more than 90 days in the grazing niches beyond 3300m.

Besides the attractive immediate income from cropping to both the croppers and landlord, the principal driver is political, with confused land tenure and resource tenure. The land owners are absentee landlords, with no direct livelihood dependence on pastures, and who are also politicians and dependent on the votes of these herding and farming tenants. They have installed check posts down the valley, where they collect one-tenth of the cash crop produce when it is transported. These tenants want to encroach for maximum possible land for cropping. The state law prevents forcible evacuation of long time tenants; hence, these tenants intend to permanently occupy these lands. This creates a win-win situation for landlords and cash crop tenants, at least for the time being.

The motivation for the extension of cropping to more virgin marginalized lands is the decline of land productivity each year that increasingly requires fertilizer and pesticide inputs. Good quality crops from virgin croplands, mainly potato and peas, are then mixed with low quality crops from old croplands to fetch better prices in the market.

### **From REDD+ Principles to Pro-Poor Alpine Pasture Management in Pakistan by Syed Aziz-ur-Rehman, UoP**



Syed Aziz-ur-Rehman

Mitigating climate change through rangeland management has poverty alleviation potential, given grasslands' high carbon storage capacity and the dire living condition of many pastoralists globally. Applying REDD+ principles, we have shown that avoided emissions from renouncing grassland conversion is, under certain conditions, a superior choice for herders than conventional improved grassland. Mobile pastoralists, or Ajars, in the Pakistani Himalayas seek higher incomes by cash cropping over alpine summer pastures.

Tilling steep slopes however, degrades soils and requires increasing fertilization to sustain yields. We quantified carbon from mutually exclusive cropping and pasturing land uses in the Upper Naran Valley, hypothesizing that (i) cropping over pastures reduces carbon stores, and that (ii) avoided emissions from preventing the conversion of pastures into cropping fields may yield more carbon payment for smallholders than conventional improved pasture. For (i) a one-way analysis of variance shows that all variables taken separately have a significant effect ( $P < 0.01$ ) on mean soil organic carbon ( $n=72$ ) [ $\text{g kg}^{-1}$ ]: (land use) crop/pasture 13.3/15.9, (aspect) North/South 16.1/13.2, (elevation) low/middle/high 10.9/16.2/16.8, (soil depth) shallow/deep 1.4/1.53. Only land use has a significant effect ( $P < 0.01$ ) on biomass carbon with more than twice the amount in pastures ( $n=36$ ) [ $\text{g m}^{-2}$ ]: crop/pasture 127/318. Enteric methane release from livestock in the pasture scenario is largely nullified by increasing greenhouse gas releases due to fertilizer inputs needed in the cropping scenario.

For (ii), we followed the IPCC guidelines to show that preventing the conversion of pastures into cropping fields avoids an average loss of  $12.2 \text{ t C ha}^{-1}$  or  $44.8 \text{ t CO}_2\text{e ha}^{-1}$ . This is likely to represent a large amount (still being estimated) of  $\text{CO}_2\text{e ha}^{-1}$ , more than the average improved pasture activities recorded in various other alpine environments in the Himalayas. This study warrants for benchmarking higher income from short-term options (cash cropping) vs. sustainable long-term rangeland management while integrating carbon finance as a land restoration instrument for smallholders.

### Fodder trees and their importance for landless pastoralists in the Hindu Kush Himalayas of Pakistan: Dr. Inam-ur-Rahim, FRESH



Dr. Inam-ur-Rahim

Feed resources in lowlands, en route and uplands are basic to the transhumance in the northern mountains of Pakistan. Without prejudice to the upland pastures, the lowland and en route feed resources are critical to maintain the herd size by the landless pastoralist. The pattern of availability of these feed resources directly impacts the duration of grazing of their animals in upland pastures.

A large part of the livestock feed requirement in lowlands and during mobility is naturally derived from trees and shrubs. Here these are subject to large reductions without regeneration. The trees and shrubs are cut for domestic and commercial fuel (tobacco kilns consume a considerable amount of fuel). Some 40 years ago, these trees were abundant, and settlements, non fodder crops, and non fodder trees and shrubs plantations were not yet widely spread over the valley bottoms and hill slopes. The LMPs have been pushed to more difficult and marginalized areas with crowding and overgrazing. The animals are underfed and more prone to diseases and mortality. Quite a few tree and shrub species have been identified that are preferred by the LMPs for their animals, and which have high a nutritional value.

These tree and shrub species require a longer time to grow, but they are socially, economically and ecologically accommodative, and are a requirement of the social harmony between LMPs and landowners. Herders have a healthy knowledge about these species and they can be involved and given a partnership stake in the plantation campaign.

The key fodder trees and shrubs used by transhumant herders include in the lowlands *Grewia oppositifolia*, *Zizyphus jujuba*, *Acacia modesta*, *Olea cuspidata* and *Myrsine africana*. The key fodder trees in the midland elevations include *Melia azedarach*, *Robinia pseudoacacia*, *Morus alba/nigra* and *Debregeasia salicifolia*. The key fodder trees and shrubs near the uplands and at the sub-alpine region include *Corylus avellana*, *Betula utilis*, *Salix tetrasperma* and *Indigofera heterantha*.

Planting fodder trees and shrubs in the lowlands, along trekking routes and in forest zones below the uplands may make fodder available to landless herders during winter scarcity and transhumance. It can also contribute to a delayed arrival and reduce stocking pressure at both upland and lowland areas.

# Stakeholders' Perspective and Role



Noor Zada, LMPs' representative

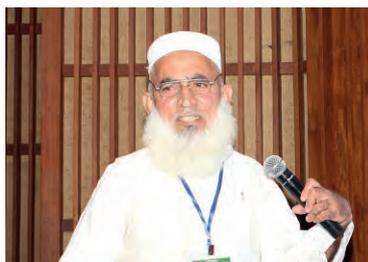
## LMPs

Their animals are being reduced, and so they are having half the herd size of what they had two decades previously. The reasons for this reduction are:

- The low grade and spurious veterinary medicines in the market
- Continuous cutting of fodder trees and shrubs without regard to the lease of the area, and heavy rents for grazing to LMPs in the lowlands
- Hillside closures for forest plantations in the lowlands and during mobility
- Plantation of alien trees with no feeding value by the Forest Department
- Stealing of animals in highway traffic rushes
- Advance payment to landowners in the lowlands and the uplands before the arrival of animals and the making of shelters.

On the social side, LMPs cannot avail access to education for their seasonal mobility. They are dependent on land owners, animal dealers and/or bribes in order to be bailed out in civil or criminal cases or in disputes with landowners or local residents.

## Landowners



Haji Mohammad Afzal,  
Landowners representative

A herder's community is not as cooperative as it was previously, and it is losing support because:

- There is a lack of leaders whose task previously was to distribute pastures among the pastoralist, and they were skillful negotiators for fixing the pastures tax. The increasing links with landowners, individual dealings of small herders, bidding over others, and sometimes subletting causes their exploitation.
- They damage crops, especially wheat and mustard, during mobility.
- They pay rent and liabilities in parts instead of as a whole, and some defer payments to other seasons.
- They cut down trees and shrubs and sell them in the market, while on rent terms their animals should only eat the leaves of the trees and shrubs.
- When they rent pastures they come under the protection of land owners, and whenever something happens landowners always fight for them.

## Forest Sector

The livestock of LMPs is highly damaging to the regeneration of conifer forests, the inability to drive them to normal forests is wide spread. The livestock damages the new plantations in the mountain forest and hinder their growth. They over-lop the broad leaf trees, an important ecological part of the conifer forest. The same type of damage is inflicted in scrub forests in the lowlands and during the livestock's mobility. In alpine pastures, besides overgrazing, salt is sprayed on non-palatable plant species to tempt livestock to eat them. This is a very injurious practice that damages plants that have medicinal value and many other ecological services. Livestock also graze in areas newly covered with bioengineering structures for stabilization of land slips, and this causes big economic and ecological losses.

The role of the KP Forest Department under policy and legislative mandate is to protect forests against illegal cutting, regulate the extraction of timber and other forest produce for domestic and commercial use, obtain economic production of timber with a sustainable yield, and manage and regulate the grazing of livestock of rights and concession holders. The Department has the facilitative role to protect and enhance the watershed and ecological values of forests, integrated natural resource management, and community participation in plantation campaigns. In the case of LMPs, this is the primary sector responsible, along with the Wildlife Department, for influencing the policy of regulating the non-cultivated land management in the province.

## **Wildlife Sector**

LMPs are involved in the shooting and snaring of wild animals for meat, skin, musk and other body parts, as well as the retaliatory killing of large predators for depredation of livestock. Their livestock is very hardy and can reach the remote niches of wild animals and birds, and besides competing for space and fodder with wild herbivores, they can highly disturb the breeding places of many important wildlife species. Livestock grazing is the principal hindrance to ecological successions and other processes to obtain dynamic natural systems and high levels of biodiversity. LMPs have a large influence on the natural habitats from 400 m to 5000 m with their more than a dozen mobility routes all along the width of the mountain region.

The mandate of the KP Wildlife Department is to protect wildlife against illegal hunting, regulate hunting in game reserves, declare and manage Protected Areas of various categories with a variety of restrictions on the use of wildlife habitats so as to manage ecosystems with natural dynamics, and to promote biodiversity. The department's facilitative role is to promote the aesthetic and biological values of wildlife, and integrate natural resource management and community participation in in-situ and ex-situ conservation of wildlife. In the case of LMPs, this is the primary sector responsible, along with the Forest Department, for influencing the policy of regulating the non-cultivated land management in the province.

## **Livestock Sector**

LMPs are an extensive, and the most cost effective, livestock production system, and one of the largest sectors of small ruminants' production in the country. They have a large effect on food security and provide a large contribution to the national GDP. Because of the LMPs' make-shift dwellings and mobile lifestyle with their livestock, the DL&DD infrastructure is not strong enough to provide effective veterinary coverage to them. The LMPs are the carriers of zoonotic diseases. The livestock of LMPs are underfed in the winter and during their mobility in the spring, and they are prone to many diseases. They are the custodians of indigenous livestock breeds and they are exploited in the livestock markets.

The role of the DL&DD-KP is critical to providing leadership for organizing this uncoordinated livestock production system. The department provides the essential veterinary and husbandry services, and can facilitate the LMPs in negotiations with landowners and forest, wildlife and local government departments and other stakeholders to remove the hindrances to amicably sustain this system, and improve fodder resources for their livestock in coordination with the Agriculture Department and research institutions. They can also work towards building social institutions and improving LMPs' livelihoods and help stop their marginalization. The department is planning to conserve *in-situ* and *ex-situ* the indigenous livestock breeds in the custody of LMPs.

## **Agriculture Sector**

LMPs are very committed to follow their ancestral or traditional routes and have made connections with the resident farmers and agro-pastoralists on their migratory routes. They have less awareness of the farm and dispensary services availability in the vicinity of their camps. Local farmers avail LMPs' services on nominal wages, mostly in-kind. Their animals feed on fallen and diseased leaves in fruit orchards and help control the orchard diseases. In southern districts, when the wheat growth is in the seedling stage, farmers allow LMPs' small animals to graze on the upper part of the seedlings. This increases the vigor of the plants and adds to the fertility of the fields for a better yield. It also decreases weeds.

The Agriculture Department raises awareness amongst the farmers about new technologies and farm services that are available through its extension workers. It can also help in negotiations between LMPs and landowners in coordination with the Livestock Department. It can also work with that department to improve the feed resources in the lowlands and on mobility routes.

# Stakeholders' Perspective and Role

## **Inspector General of Forests Office**

The IGF office is a part of the Ministry of Climate Change, GoP, and is the international liaison office and focal point for profiling policies for the implementation of the provisions of the forestry and wildlife related international conventions. With the recent devolution of the subject of the environment to the provinces, the provinces are now the custodians of land management policies and legislation. The office of IGF is skeptical of enrolling the willing support of the provincial forest and wildlife departments for LMP-related policies, as the IGF feels that the departments are ignorant of the latest developments and research evidence, and their attitude is based on the orthodox know-how of range management. The IGF strongly believes that the support of international academia and research institutions and conservation NGOs and donors is required to produce and disseminate policy evidence, and to lobby with policy makers at various echelons of power.

## **Universities**

The subject of pastoralism is new to the universities in Pakistan. Some universities have the introduction of range management as a subsidiary subject to forestry, agriculture, veterinary and animal sciences, but specific pastoralism and its socio-economic and ecological dimensions have not been made part of any such discipline for education and research in the universities.

The universities have a variety of departments and a large number of students with diverse interests. There are also universities of specific disciplines, like agriculture and livestock. Pastoralism and range management are multi-disciplinary areas for education, research and development. The resources, human and financial, available with the universities can be coordinated and utilized through intra-university and inter-universities cooperation, and cooperation with research institutes.

## **Research Institutions**

NARC at Islamabad and the Range Management Branch of the Pakistan Forest Institute at Peshawar are two main entities in the country that are mandated with applied research in range management. Presently, they have very limited financial allocations for undertaking field research and their research is largely focused on range plants, range soils, range ecology, biomass, range improvement and the introduction of exotic fodder species and the like. This is undertaken mostly *ex-situ* in labs and on demonstration plots. There has been scanty or no real research in the field of pastoralism in general, and of the LMPs in particular. However, they have a strong stake and also desire to include such themes in their research portfolios. Additionally, they need orientation and guidance to integrate social, economic and ecological and policy research on pastoralism and range management.

## Learning from the Field Visit



Discussion with LMPs during field visit.



Intensive feeding during scarce winter.

The field visit was generally much appreciated by the workshop participants, and they took this as an opportunity to bridge the gap between theory and practice. The participants were from different backgrounds and had different interests. However, the discussions were mainly focused on the problems and challenges of LMPs in the lowlands.

This field visit could provide a larger part of the picture, if not the whole, on how social and economic issues of LMPs are intertwined with the local resident population and the local landlords. The participants could realize what landless people mean, seeing their dwellings in make-shift camps with their joint families, and attempting to blend with the culture of local residents. The participants could also understand the difficulties of managing a mobile pastoralist system in the wake of shrinking space and feed resources. This was to see how a pastoralist relates to the people who control the land. An interesting discussion was self-generated between the LMPs and an old-aged local landlord who happened to come by chance. He showed suspicion of his tenant LMPs talking to unusual visitors in a camp away from his village. Both sides could informally exchange their grievances and frankly complain against each other about not meeting promises.

The LMPs were living on the lands of landowners and had to pay quite a substantial amount of money, which increased from year to year. One camp was, at that time, on the premises of a factory. The camp could be made to vacate at any time, and then the LMPs would have to seek another space, and therefore be at the mercy of a different landlord. The discussions and observations also revealed that the LMPs are made to start from scratch each year in a power and money game to fetch a space and erect an infrastructure in make-shift and uncertain patterns. The discussions with pastoralists also clarified their difficulties with how they work with traditional medications and veterinary medicines purchased from the local markets, as well as the apathy of the veterinarians towards their problems of livestock diseases. Similarly, the LMPs explained their strategy of reducing and increasing their herd size in the face of the availability of fodder. They would sell some animals and arrange fodder for the remaining ones in case of scarcity.

## Salient Recommendations of Groups

- Mobilize the LMPs to form cohesive and viable social organizations that can articulate LMPs' issues, make decisions for collective implementation, negotiate and draw up agreements, avail social, economic and legal services, manage collective funds and secure the transhumant system with productivity and efficiency.
- Create a forum for cross-sectoral dialogue to improve the socio-economic conditions of the LMPs and develop a framework for policy formulation on pastoralism and rangelands in the mountain areas
- The mobility routes of LMPs should be well marked and notified, should be wide enough for the LMPs to travel with their herds, and should not be planted.
- The resting places along the mobility routes of LMPs should be well marked and notified, and fodder trees/shrubs plantation should be promoted along the mobility routes and around the resting places
- The forest regeneration areas or protected areas where grazing is prohibited in legal and ecological terms, which fall near the mobility routes, should be well advertized to the LMPs. Similarly, the travel schedule of herds should also be given to forest/wildlife functionaries. There should be agreed protection arrangement for such areas. The LMPs will then lop only permissible trees to a biologically viable limit by trained individuals.
- Agreements between the LMPs and landowners should be transparent and documented, and should be for a long term in order to secure their tenure of use. They should also be patronized by responsible government functionaries. The person authorized to receive grazing rent should be well notified. In the upland pastures, and where applicable in lowland pastures also, this should provide for: the extent of the pasture, animal numbers according to carrying capacity, the period of pasture use, the avoidance of poaching of animals and birds, a ticketing system for grazing animals, the collection of medicinal plants, and the avoidance of pasture degradation practices like spraying of common salt.
- During mobility, LMPs should avoid grazing in protected areas, forest regeneration areas and new plantations, avoid over-lopping of trees and avoid damaging crops.
- Revisit land management related policies, laws and rules, especially on forestry, wildlife, tenancy and local government. They should be modified and strengthened, where required, to provide inter-alia for regulating the conduct of pastoralists, sustainable land use, land tenure and resource tenure, slope cultivation, cultivation in alpine pastures, security of traditional mobility routes of mobile pastoralists, markets of livestock and their products with special respect to large livestock holders, and carbon market exchanges for ecosystem services.
- Policies and laws on social welfare, social institutions and human rights should also be revisited for mainstreaming LMPs' social status and to prevent their social, legal and economic exploitation and marginalization.
- Laws on spurious drugs and charlatans should be strengthened and enforced to avoid large economic losses to pastoralists.
- Develop the capacity of select pastoralists to initially diagnose livestock disease and perform in time vaccination, give treatments and to ensure the availability of genuine medicines.
- Barren lands should be planted with fodder trees, and water harvesting techniques should be developed to establish forests and improve pastures.
- The DL&DD should have more research and extension on animal-borne and zoonotic diseases, and arrange for the safeguarding of the health of pastoralists and the public, as well as resident farmers' livestock and wildlife.
- Possibilities may be explored to develop fodder enterprises at the landowners' level along the mobility routes of the LMPs, and also in the lowlands for winter feeding with the use of water harvesting techniques.
- The capacity of the stakeholders' sectors staff should be developed in pastoralism and range management to cater to the sustainability of the livestock production system.
- Possibilities should be explored for insurance for LMPs' livestock and for compensation for losses due to calamity and depredation.
- Prepare a robust data base about LMPs and their livestock and update it regularly through monitoring.

## Closing Speeches



Mr. Afsar Khan

### **Mr. Afsar Khan, Secretary of Agriculture, GoKP**

Dr. Inam ur Rahim, Dr. Henri, Dr. Qibla Ayaz, Dr. Noor Jehan, National and International delegates for this workshop, my dear friends and the herdsmen coming from across the Khyber Pakhtunkhwa, 'Assalam o Alaikum'.

Thank you for inviting me to this august gathering, and I definitely regret having missed the opportunity to hear the volume of knowledge that you all must have shared with each other during the previous sessions. It was because of my other commitments that I could not come earlier, however I made it a point to be here at the closing session. Now, after this workshop, the recommendations of which should be coming to us, the goals that I have perceived are to (1) raise awareness among the public about the plight of pastoralists, (2) improve the image of pastoralists amongst the government and development organizations by emphasizing their role in sustainable food production and preserving indigenous livestock breeds, and as stewards of an intricate indigenous knowledge system on survival, (3) provide information on the situation of pastoralists, (4) facilitate interaction between pastoralists on one hand and government and NGOs on other hand, (5) organize and implement pastoral development projects, and (6) act as a pressure group for the rights of pastoralists on the international level, which would be done by NGOs, of course. So there are certain goals that we now have in front of us.

I will not go into the threats that are there for the pastoralists because that must have been discussed a lot. I would definitely now briefly say that the challenges and opportunities for pastoralism are enormous. These are the equitable access to land, water resources and secure land use systems, including protection of pastures from encroachment and the strengthening of local and customary systems. Also, that they are better able to negotiate dry season access to key resources for pastoralism. I am talking of the dry season and not confining myself to the northern part of Khyber Pakhtunkhwa, as we have similar herds in the arid areas of the southern part too. We need to keep in mind that the expansion of trade, integration of markets and increasing regional inter connectivity are going together with high and growing demand for animal proteins all over the world.

There is an issue of conflict for the herdsmen. There is a problem in avoiding pastoralist's reliance on mobility, which makes them particularly vulnerable to conflict, and fear of conflict, and which can cut off their key resources and block them from important markets. I will discuss the pastoralists' women more, because my personal interaction with the pastoralists is that during winters one section of them comes just opposite the place where I live. They station themselves there and we have a lot of interaction. I do definitely understand their way of life and what they do and what they intend to do. Pastoralists' women play a significant role in pastoral communities and are key agents in livelihood development, as we have seen in the documentary that Abid Zareef has shown. The Livestock Department, in the future, will plan, and understands the need to create, an enabling institutional environment at state and local government levels that is sensitive to the specific needs and constraints of the pastoralists, and also provide them with space and authority for their decision making. To reverse rangelands degradation, customary and local institutions need to be strengthened, so that they can make better use of traditional knowledge and ensure that pastoralism continues to be practiced and managed effectively and autonomously without external pressure. We think that development should have a clear understanding of the national policy context of supportive and unsupportive policies and of the general attitude of the government towards pastoralism.

A special focus on the pastoralist's related issues and constraints is also required in poverty reduction strategy papers at the government at the provincial and national levels. More attention should be devoted to indigenous environment knowledge, with an emphasis on the preservation of species and habitat. This would contribute to biodiversity and make pastoralism essential for the health of the ecosystem, and the health of

## Closing Speeches

wetlands and dry lands in the northern areas in Khyber Pakhtunkhwa. The issues and recommendation of this workshop should be coming to us, however, in the long run, we perceive that the state departments need to allow for the creation of land management systems that are flexible enough to account for the evolution of customary laws and temporal and spatial variations in fodder and forage production. A livestock marketing information system and improved communication network to provide rural populations with information about livestock prices at the secondary and terminal market level would be beneficial to the poor. We have very recently launched a project in collaboration with Telenor where farmers are linked up with the market, and we are looking forward to including the herdsmen too. We are excited to increase the size and capability of the Livestock Department and the Fisheries Department, so that they can better plan and implement pro-poor livestock policies and projects.

These are our visions at the moment, but as Malik Sahib has said, we need to have collaboration with the Forest Department on all levels, and let me tell him that we did move a summary for intermingling the Forest Department and the Agriculture Department so that there is better coordination. These departments have been divided, and as a first step the Fisheries department came back to us, and we are looking forward to bringing the Wildlife and the Forest Department back into the agriculture sector. We have planned for that and are putting forth the summary. Let's hope that we get it, and then we will have a comprehensive strategy and a policy made for the herdsmen too.

At this stage, somebody asked what next is to be done? I would now request to Dr. Sher Mohammad, my Director General, Livestock Department, that right now at the start we must have a pastoralism unit in the Livestock Department. So "go ahead, develop a separate unit and put it in the draft PC1 that we are formulating nowadays". It is the first step that we are to take.

I must confess that I did not know anything about pastoralism, apart from the fact that I told you about some herdsmen that come and station themselves and pitch up their tents across my house. But when I went through some documents yesterday, now I understand that these herdsmen and this livestock sector are more important than our government livestock sector. This is what I feel and I understand. So we would be evincing into this, we will have an exclusive project for this. (Addressing directly the herders in their native language) "Here you can see the veterinary doctors, sitting beside you. I will order them to take some measures to stop fake medicines, and we need a law for that. In fact, most of the doctors are also shopkeepers. We are creating a separate section for you in the livestock department, and we will solve all your problems and issues at the government level".

So thank you all once again. I would not take much of your time. I am grateful to you all. Thank you.

### **Dr. Qibla Ayaz, Vice Chancellor, UoP**



Dr. Qibla Ayaz

Honorable Afsar Khan Secretary of Agriculture, Professor Noor Jehan, honorable international delegates, the delegates from Buner, Swat, Haripur and other parts of Pakistan and Khyber Pakhtunkhwa. I take this opportunity to express my deep gratitude to all of you for making this conference a successful academic event. I hope that the papers read and recommendations prepared will go a long way in improving the understanding of the rare discipline of pastoralism studies. This workshop and its deliberations have unearthed a new discipline, which is very important to the economy not only of Pakistan, but also to many other countries in which pastures and pastoralists exist. We all know that this is an international phenomenon that has existed throughout history.

The oldest pastoralist that we know of in this area of the Middle East and Asia are of course, the Seljuk, who later on became sedentary and they ruled parts of Iran, Iraq and Central Asia. There were also the Mongols who were pastoralists, but then in the thirteenth century they took over Baghdad and they became to a greater extent sedentary and ruled a vast land in the Middle East in Asia, and even today they have their own state of Mongolia. In today's world, we know that in Saudi Arabia pastoralists exist. Known as "Bedouins", and despite the fact that the government offers them palaces and sedentary accommodations, they have stuck to their own lifestyle, and they are contributing in their own way to the economy of Saudi Arabia.

In Pakistan, we have the Thar Desert, parts of Malakand, Kohistan, Buner and all these areas, while in India there is Rajasthan and in Africa, particularly Southern Africa in Nisei, where a major portion of the economy is dependent on pastoralism. As such, this discipline, being so important and greatly neglected, needs to be studied. It is a multi-disciplinary subject, but the University of Peshawar offers to establish a cell for pastoralism studies to begin with. This bell (brought from Switzerland and given as a gift to us) will be the logo of the proposed cell. We would appreciate and welcome the academic support of Bern University, Switzerland, and from any other international organization to make this cell a vibrant unit of studies of the University of Peshawar.

The problems of the pastoralists are many. I am glad that Secretary of Agriculture, Mr. Afsar Khan, has announced that he will be looking to these problems and will solve them, but we can be helpful in part of the problem. The University of Peshawar is very pleased to offer at this gathering special seats for pastoralists' children in our schools and we will waive tuition fees for them. These students can then become moving teachers in the community of the pastoralists, and that will be the little contribution that the University of Peshawar will be very pleased to make. As the English saying goes "it is not for you to complete the task but neither are you free to withdraw from it". So we will continue with these efforts and we will look forward to the recommendations of this workshop. We can then have further meetings on them with our policy makers, and hope that many new things will come up in the months and years to come. I am very glad with these announcements, and with this I declare this workshop closed. Thank You!

## **Cell on Pasture Studies at DES-UoP**

Keeping in view the socio-economic and environmental importance of pastures and their products, the DES-UoP desires to sustain studies and research in collaboration with the FRESH/University of Bern. As a first step, the UoP has created a 'Cell on Pasture Studies (CPS)' with the following functions:

- To study pastures and the role of herdsmen, with related issues
- To study the flora and fauna of pastures
- To facilitate awareness for the promotion of research on pastoralism
- To undertake research activities and establish M Phil/PhD level studies in the field
- To develop MoUs and linkages with national and international universities and organizations for the promotion of pasture studies

It has been initially envisioned that the CPS will work towards the following developments:

- Enroll 2-3 MPhil/PhD students each year for research in pasture studies
- Introduce and conduct a one-year certificate course in pasture studies
- Facilitate 25 children of landless pastoralists to pursue formal education from KG to Secondary level with an enrollment of 5 students per year

The DES at present offers one designated course on natural resource management with some touches of range management for Bachelor of Science classes, but they lack adequate in-house faculty for which they are largely dependent on borrowed faculty from other departments of the university and other institutions. The CPS will be confronted with the following challenges:

- The subject of pastoralism is new and less known in academia, as well as with no known job market. Enrollment of candidates of post-graduate and doctorate level or for one year certificate course will require greater awareness, guidance and academic and development debates at the initial stages to match the profession with other natural resource management and environmental sciences to raise the interest of the students.
- The research work of pastoralism is by and large field work and season-based. Long travel and roughing in the field with basic food and dwelling for extended periods requires greater commitments and expenses on the part of the students.
- The known faculty at DES-UoP and at local level institutions is few and not well conversant with the subject. The relevant books and literature is not in use locally. Drawing on appropriate curriculum and guidance for its delivery and also arranging faculty for its delivery will be the pre-requisite to carry out the studies and research in the CPS for regional and global contribution.
- The CPS seems dependent on full time support for an initial 3-4 years to avail the human and financial resources from outside, and may be longer in the case of the education of the children of LMPs.

## **Education of Children of LMPs**

The UoP has principally agreed to facilitate the admission and pursuit of studies of 25 children –five children each year –of the landless pastoralists from KG to Secondary level in the schools of UoP, with waivers of tuition fees and hostel accommodation charges. The FRESH will help in the selection of enough children of LMPs. The Pastoralism cell and FRESH will jointly watch on their needs and progress and for any drop outs. Additionally, the students will need support for books and stationary, uniforms and clothes, food and stipends for which the university has no funding provision. The DES-UoP is again looking for external support through FRESH/donors.

This will be a minimum 15-year project by the time that the last batch of five students successfully completes the secondary level formal education. A strong commitment of resources from one agency for such a long time will be a challenge. However, a 'Trust Fund' can be created with the DES-UoP if funds could be raised in the initial stages for the total requirements of 15 years for 25 students.

### Pastoralism Unit at the DL&DD

The DL&DD as a partner to the LPRP, and as follow up of the workshop, proposed to the Government of Khyber Pakhtunkhwa the creation of a pastoralism unit at the of DL&DD and the proposal was approved by the Government with the following terms of references. This has been one concrete development that the research of LPRP could advance the formal institutional building as the research for development.

- Prepare a sound database of the mobile pastoralist system in the province, which should inter-alia include the demography of the pastoralists, herds' composition and dynamics, epidemiology, status and distribution of indigenous livestock breeds, livestock breeding practices, mobility routes and transit camps, and market processes.
- Prepare development programs in the light of the above data to clear the snags in the perpetuation of this less capital intensive, but more vulnerable, livestock production system and equitable sharing from the market returns.
- Strategize and implement the mobile services of veterinary coverage, preferably integrated with the human health coverage of mobile pastoralists.
- Strategize and implement improved marketing of live animal and mobile pastoralists livestock products through providing facilities in the existing livestock markets.
- Build capacity of the selected mobile herders to make them local semi-professional livestock workers.
- Organize the mobile pastoralists' social institutions for institutionalizing the interventions for livestock, pastures and livelihood improvements.
- Incorporate outside support in their deliveries and their capacity building for perpetuating the mobile pastoralists system in conformity with the international parameters and environmental stability.

This unit is currently in need of back up at least for the initial 3-4 years to effectively function and pilot the development projects and policy inputs for pastoralism and rangelands.

### Initiative of the DL&DD to Support LMPs



Traditional resting place of LMPs.

The LPRP could motivate the DL&DD to initiate a project to support the LMPs, who are both the most marginalized community and the most livestock productive community in the country. With a variety of hindrances on their mobility routes and also due to climate change, the region is characterized by a highly disturbed socio-ecological setting that had prevailed in harmony for centuries. The DL&DD has proposed a Public Sector Development project with a principal thrust to organize and enhance the capacity of the transhumant community to conserve their profession and restore socio-ecological harmony in the region.

150 million Rupees (1.6 million USD) have been allocated for the next 3 years (2013-16) to support the two pilot pastoral systems, the Burhawai-Haripur system toward the East of the Indus River in the Himalayan region and the Mahodand-Khadokhel system toward the West of the Indus in the Hindu Kush region. The key objectives of the project include:

- The strengthening of the social institutional capacity of transhumant community organizations to secure and manage mobility routes
- The enhancement of the winter feed and fodder availability in the lowlands to delay the departure for summer pastures
- The establishment of resting places (transit camps) along the mobility routes to summer pastures and back to the lowlands with adequate feeding, grazing, watering and animal health services to delay their arrival in summer pastures and to reduce animals' mortality
- The establishment of financial mechanisms of endowment funds at transhumant community organization levels to meet the recurring costs of the mobility routes' security and management
- The establishment of a system for monitoring and evaluating the project's socio-economic and ecological impacts

### Conservation Program of Indigenous Livestock Breeds



Achai compared with Friesian cow.

The DL&DD has recently started the Achai cattle conservation program in the northern mountain region of Khyber Pakhtunkhwa. This include the registration of Achai cattle herds, an *in-situ* conservation component through the distribution of Achai breeding bulls in different villages, and an *ex-situ* conservation component through establishing an Achai cattle breeding farm for breed improvement. The next phase of the program is expected to include the indigenous Azikheli buffalo breed conservation as well. The research findings of the two PhD students on the characterization of the two breeds are providing the necessary base for selection of the elite animals for conservation. Further studies on these breeds need to include genotypic characterization.

The other indigenous breed is the Kari sheep, which are limited to the agro-pastoral communities in Chitral, the Kutta sheep with mobile pastoralists in Swat and Naran, and the Bishgali and Gabrali cattle with the agro-pastoralist communities in Chitral and Gabral (Swat Kohistan) respectively. Of the above breeds only the Kari sheep breed has been phenotypically and genotypically characterized, while the other breeds are yet to be characterized.

### Redirecting Forestation Campaigns towards Fodder Tree Species



Traditional way of fodder tree lopping.

To increase the indigenous fodder trees and fodder shrubs in valley bottoms and hill-sides to meet the LMPs requirements in lowlands and on the mobility routes is a big challenge for foresters and the land owner community. However, innovations to push the planting campaign to economic enterprise of fodder sale to LMPs and for the land-owner use may encourage the foresters and land owner community for such trees and shrubs. The present conflict situation can then be changed to a win-win situation for both, the LMPs and landowners.

The plantation campaign, chiefly for tree species, on public and private barren lands is solely of the Forest Department, and mostly with the cooperation of landowners. The objective is to increase the forest cover and watershed protection, as well as meeting the chance needs of fuel, fodder or timber of the land owners. The land ownership is fragmented in small holdings and the department has to enroll the community organizations, which itself is an uphill task, in their social forestry.



Due to reducing mobility duration the herders arrive early at upland, when the hill slopes are still covered with snow. This causes severe deterioration of vegetation and soil.

The planting stock for this campaign comes from the nurseries of the department. The species most planted include *Acacia modesta*, *Acacia nilotica*, *Robinia pseudocacia*, *Ziziphus spp*, *Ailanthus altissima*, *Eucalyptus camaldulensis*, *Pinus roxburghii*, *Dodonaea viscosa* and the like; both fodder and non fodder species. However, the planting and sowing is not with the objective of economic analysis for fuel and fodder, but rather to increase forest/watershed cover. Fast growing, non palatable, drought resistant and established nursery techniques are currently the main drivers for the selection of species for planting and sowing by the Forest Department. The department can add to this list by design the multipurpose species of fodder and fuel with the preference of LMPs/landowners and economic consideration. Although the first priority will be the self use by the land owners, the potential can still be explored for systematic harvesting and yield for any sale to the LMPs. Cost-added protection against LMPs animal grazing can largely be minimized by bringing them on board as partners along with the land owners. This could allow for the greater use of social fencing instead of the less effective barbed wire fencing.

Rapidly growing alien tree species were planted in the 1990's in Swat and Buner on fenced plots to rehabilitate hillsides. Despite these plantations, considerable regeneration of indigenous fodder trees and shrubs occurred after 4 years. This indicates that a temporary fencing of hillsides is a sufficient measure as to increase native tree cover while sparing the high cost of planting alien species that may as well out-compete the native ones. This has been beside the increased cover of the grasses and other herba-ceous vegetation.

### **Supporting Pakistani MSc and PhD Students**

LPRP signed a MoU with UoP and UVAS, Lahore, for providing research support for field work and joint supervision of master level students for research on the livelihood of landless pastoralists. Two PhD students enrolled at Quaid-e-Azam University, Islamabad, were nominated by the DL&DD along with a suggested research area by the department. The PhD students were involved in research on the characterization of non-documented pastoralists owned indigenous livestock breeds.

The two PhD and three MSc students were able to complete their research and studies, while three other MSc students are to continue even after the project termination. Two other research students joined the LPRP project in the initial phase; however, they soon felt the research involving field work with mobile pastoralists too tedious and time consuming. They were then replaced by other willing students.

The general observation during work with Pakistani students can be summarized as follows:

- The Pakistani students are comparable to students from universities of advanced countries in commitment to research. The prerequisite is appropriate coaching and facilitation during the research process.
- The students who are native to mountain regions are more willing to work in mountain environments, while those from the plain and urbanized territory find it difficult to do extensive work in the mountain areas.
- The background of students on research methodology and statistical analysis is quite weak and they need consistent support for conducting, analyzing and reporting the research studies. This warrants the universities to put more emphasis on training in research methodologies and analysis applied support to carry out research studies.
- Due to the non-availability of funds for supporting field research, a large number of students are obliged to repeat research on the campus rather than doing research on original problems in the country.
- The nomination of in-service candidates working in the development sector can be very beneficial as they are exposed to real world situations. Two PhD students nominated by the DL&DD were not only able to complete their research, but their research findings also strengthened the department's conservation program for indigenous breeds conservation, and these findings were readily applied during the process of conservation of indigenous breeds.
- Development oriented research projects are important for developing countries. The projects for such research need to be long term and should be gradually phased out to create a sustainable research framework at the universities and research institutes, and this could translate the research findings into policy and development.

## Appendix: LPRP Workshop Programme

<b>Day 1:</b>	<b>Tuesday 24 April 2012</b>
08:30	Registration
<b>Session 1: Inaugural session</b>	
	<b>Chair: Mr. Naveed Salimi, Chairman Pakistan Agriculture Research Council, Islamabad</b>
09:30	Recitation from the Holy Quran
09:35	Welcome address by Dr. Noor Jehan
09:40	Welcome address by Dr. Rafiqueul Hassan Usmani
09:45	Welcome address by Dr. Sher Mohammad Khan
09:50	Pastoralism in Pakistan by Dr. Syed Mahmood Nasir
10:05	The Landless Pastoralist Research Project by Dr. Inam ur Rahim
10:20	Context of the workshop by Dr. Henri Rueff
10:35	Documentary movie premiere 'The Landless Mobile Herders in Northern Pakistan
11:05	Inauguration and remarks by the Chair
11:10	Vote of Thanks by Dr. Muhammad Sharif, Director General, National Agricultural Research Centre
<b>11:15</b>	<b>Tea Break</b>
<b>Session 2: International perspective</b>	
	<b>Chair: Prof. Ruijun Long, Lanzhou University, China</b>
11:45	Characteristics of Pastoralism in the Swiss Alps by Dr. Daniel Maselli
12:00	One Health approach for livestock management by Dr. Henri Rueff
12:15	Changes in pasture and livestock management in Central Asia by Dr. Daniel Maselli
12:30	Policy perspective of pastoralism in the Hindu Kush Himalayan region by Muhammad Ismail
12:45	Pastoral practices in Hindu Kush and Karakoram - structures and transitions by Prof. Hermann Kreuzmann
13:00	Kochi Nomad in Pakistan by Mr. Abid Zareef Khan
<b>13:15</b>	<b>Questions</b>
<b>13:30</b>	<b>Lunch and prayers</b>
<b>Session 3: Local perspective</b>	
	<b>Chair: Prof. Talat Naseer Pasha, Vice Chancellor, University of Animal and Veterinary Sciences, Lahore</b>
14:45	Socio-economic aspects of mobile pastoralism in Northern Pakistan by Dr. Inam ur Rahim
15:00	Animal genetic resources of pastoralists and their status in Khyber Pakhtunkhwa by Dr. Muhammad Saleem
15:15	Transhumance hindrances in Hazara and Malakand by Mr. Wajid Rashid
15:30	Cropping extension in upland pastures and its implications for landless pastoralists by Mr. Muhammad Khurshid Roghani
<b>15:45</b>	<b>Tea break</b>
16:00	From REDD+ to pro-poor alpine pasture management in Pakistan by Mr. Syed Aziz ur Rehman and Dr. Henri Rueff
16:15	Fodder trees and their importance for landless pastoralists in the Hindu Kush Himalayas of Pakistan by Dr. Inam ur Rahim
16:30	Questions
16:45	Organizational announcements for the field trip by Mr. Iqmail Hussan Shah and Dr. Momin Khan
<b>17:00</b>	<b>Tea break</b>

<b>Day 2:</b>	<b>Wednesday 25 April 2012</b>
<b>Field trip</b>	
09:00	Departure from Islamabad
10:30	Visit and discussion at the Kangra pastoralists settlement (sheep herders)
11:30	Visit and discussion at the Mirpur Kalan pastoralists settlement (goat herders)
12:30	Policy perspective of pasture management in the Ajar pastoral system by Dr. Momen Khan and Dr. Muhammad Saleem
12:45	Visit to the Taxila museum
<b>13:45</b>	<b>Lunch and prayers</b>
15:00	Visit to the Taxila ruins
15:35	Departure for Islamabad
17:00	Visit to Islamabad view point/tea
18:00	Departure for participants' hotels
<b>20:00</b>	<b>Workshop dinner and cultural event</b>

<b>Day 3:</b>	<b>Tuesday 26 April 2012</b>
<b>Session 4: Stakeholders perspectives</b>	
<b>Chair: Dr. Syed Mahmood Nasir, Inspector General of Forests, Islamabad</b>	
09:00	Reflections on the field visit by Professor Hermann Kreutzmann
09:10	Landless mobile pastoralists perspective (representative)
09:30	Landowners perspectives (upland and lowland-representative)
09:50	Forest and wildlife protection perspectives (representatives from participants)
10:10	Agriculture Department Perspective by Mr. Rasool Muhammad
10:30	Questions and pre-identification of working group themes
<b>10:45</b>	<b>Tea Break</b>
<b>Session 5: Group work</b>	
<b>Chair: Mr. Ashiq Ahmad Khan, Ex-CTA World Wide Fund for Nature-Pakistan</b>	
11:15	Set objectives and groups
11:30	Working groups
<b>13:00</b>	<b>Lunch and prayers</b>
14:15	Presentation group 1
14:25	Presentation group 2
14:35	Presentation group 3
14:45	Presentation group 4
<b>15:45</b>	<b>Tea break</b>
<b>Session 6: Wrap Up</b>	
<b>Chair: Mr. Afsar Khan, Secretary Agriculture, Government of Khyber Pakhtunkhwa and Dr. Qibla Ayaz, Vice Chancellor, University Of Peshawar</b>	
15:30	Reflections on the working groups moderated by Dr. Henri Rueff
15:50	Perspectives on future support to landless mobile herders by Dr. Sher Muhammad
16:20	Synthesis of the workshop and call for action moderated by Dr. Inam ur Rahim and Dr. Daniel Maselli
17:00	Chair's remarks and official closure
17:15	Remarks by Vice Chancellor, University of Peshawar
<b>17:30</b>	<b>Farewell tea ( incl. group picture)</b>



The mobile herders are now increasingly using tent for stay at upland and during mobility, replacing stay in the open during mobility and residing in stone houses at upland.

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