



Newsletter

Pakistan Forest Institute, Peshawar



Chief Patron: Syed Said Badshah Bukhari
Director General

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Extension Specialist



Group photograph of participants of the National Workshop on Upgradation of PFI to Degree awarding institution

UPGRADATION OF PFI TO DEGREE AWARDING INSTITUTION

The federal government is working on a comprehensive plan for upgradation of the Pakistan Forest Institute, Peshawar to degree-awarding institution in order to conduct research and impart quality education and training to youth in forestry sciences on modern lines. In this context a workshop was held in PFI on November 26, 2010. Hon'ble Federal Minister for Environment Mr. Hameedullah Jan Afridi was the chief guest on the occasion. Secretary, Ministry of Environment, Advisor to the Minister of Environment, Chief Conservator of Forests and other experts participated in the Workshop.

Addressing the inaugural session of a day long national seminar on upgradation of PFI to the Degree-Awarding Institute (DAI), Federal Minister for Environment Hameedullah Jan Afridi said that Pakistan Forest Institute, Peshawar was a national institution and would be upgraded to

degree-awarding institution after working out all the modalities.

He said the plan was in keeping with the rich contribution in forestry sciences at national and international level by the PFI, and part of government's initiatives to prepare professionals on scientific lines to ward-off the effects of mounting challenges of climatic change, desertification, environmental degradation and other relevant issues.



The federal minister said that when he took over, different proposals including upgradation of PFI to the status of Forest

University or making it a Centre of Excellence, came up, however, in order to retain its old grandeur and prestige, the government decided to hold a national seminar with forestry and environmental experts here to present recommendations for upgrading of the country's premier forestry institute established in 1947.

The PFI had attracted foreign students besides imparting training to commission nominees of four provinces, Gilgit-Baltistan and AJK over the years due to its high standard and valuable contributions, he added, time was not far away when foreign students will again come to PFI.



NEWS OF FOREST EDUCATION DIVISION

HAKIM SHAH
Director, Forest Education

Various activities and initiatives were undertaken in the Forest Education Division of PFI during the months of October to December 2010.

Admissions

The admissions of M.Sc and B.Sc Forestry (2010-2012) session were completed.

Class Lectures

Regular classes of M.Sc and B.Sc students, session 2009-11 continued according to lecture schedules. The thesis and term papers of M.Sc and B.Sc students session 2008-10 are in progress. Moreover, PT and games continued as per routine.

Study Tours

Forest Management Plan Camp

The Forest Management Plan exercise of M.Sc and B.Sc students, session 2008-10 was conducted from 10-21 October 2010, at PFI field station Shinkhari. Lectures on Forest Inventory methods were delivered by Dr. Ayaz Khattak, DFPRD, while field work was supervised by Dr. Khattak, Mr. Bakht Zamin, APOF and Mr. Ghayyas Ahmad, APOF. Field Officers and staff of the Khyber Pakhtunkhwa, Forest department extended full cooperation in the conduct of this exercise.



The Director General, Pakistan Forest Institute, the Director Forest Education Division and the Conservator of Forests, Hazara Circle attended the concluding session of the exercise on October 20th, 2010. In his address, the Director General, Pakistan Forest Institute highlighted the need and importance of preparing a Forest Management Plan. The Director Forest Education Division, in his address advised the students to pay full attention to this important assignment and come up with an excellent document.



Field Engineering Tour

The Field Engineering Training of M.Sc and B.Sc Forestry (2008-10) session and M.Sc and B.Sc Forestry (2009-11) session at Military College of Engineering (MCE), Risalpur has been completed. It was held w.e.f 22 September to 05 October 2010, at Risalpur.

Examination

First term Supplementary Examination of M.Sc and B.Sc Forestry session (2009-11) were conducted.

Results

The results of M.Sc & B.Sc Forestry session (2009-11) 1st term Annual Examination, were declared. The result of M.Sc Forestry (2007-09) 4th and 5th term Annual /Supplementary Examination were declared. The results of B.Sc. Forestry (2007-09) 4th and 5th term annual were also declared.

Biodiversity Walk

The Biodiversity walk was conducted. All the forestry students actively participated in the programme. They also carried the display cards showing the significance of the issue. The media present at the occasion were also briefed about the role of Forestry Education by Director, Forest Education Division.



LAYOUT OF WATERSHED RESEARCH EXPERIMENTS AT FIELD STATION SHINKHARI IN COLLABORATION WITH URFS-PROJECT

Tariq Mahmood, WMS
and Zulfiqar Ali, RO

The Watershed Management Specialist visited the Field Station Shinkhari during Nov., 2010 for laying out of two research

experiments titled **“Soil Conservation for education, training and development of natural resources at Field Station Shinkhari”** and **“Run-off Plot Study”** in collaboration with URFS-project as directed by the worthy Director General, PFI, Peshawar. The entire team of collaborating staff discussed various aspects of the studies and surveyed the watershed areas for selection of suitable sites for layout of the experiments. A soil and water testing laboratory was also established for analysis of runoff and sediment yield. The Project Director URFS-project appreciated the basic work done and was kind enough to make all the necessary arrangements regarding the field work. On the direction of the Project Director, upgradation of meteorological observatory was also initiated.



Collaborating staff (PFI & URFS Project)



Soil & Water Testing Laboratory

The Watershed Management Specialist again visited the Field Station Shinkhari during Dec., 2010 in connection with construction of flumes. Several issues regarding the design & size of flumes, fencing, check damming, planting, data collection and processing were finalized. The progress of flume construction was found satisfactory. Incharge, Field Station Shinkhari was asked to immediately start the fresh construction of Runoff Plots. Meteorological data collected at the Field Station observatory was compiled. Soil & water sample testing was also initiated for the analysis of water and soil yielded from the Runoff Plots during 2010. The meteorological observatory of Terbela Watershed Project near the Field Station was also visited. GPS survey of the selected watersheds was completed. All the proceedings were discussed with the Project Director-URFS and the Director, Forestry Research Division for carrying

forward the research work under their guidance and support.

MAPPING INTER SECTORAL LINKAGES BETWEEN THE FOREST AND WATER SECTOR POLICIES

Dr. Mamoona Wali Muhammad, APoF

Pakistan Forest Institute (PFI) Peshawar has always served as center for forestry activities at national level. Continuing its role, the Pakistan Forest Institute, Peshawar conducted a workshop on Mapping inter Sectoral linkages between the Forest and Water sectors. This consultative workshop was organized on 29th December 2010 by LEAD Pakistan with financial assistance of FAO to seek comments and finalize recommendations on the report that reviews national and provincial laws, rules, regulations and notification of forest and water sectors.



The workshop was inaugurated by Syed Said Badshah Bukhari, Director General, PFI, Peshawar. Mr. Hakim Shah, Director, Forest Education Division, Mr. Ali Haider, Director GIS, Dr. Mamoona Wali Muhammad, APOF, Mr. Tariq Bangash, Watershed Management Specialist and Mr. Atif Majeed, Deputy Director (Technical) represented PFI. Mr. Rizwan Mahboob (Consultant LEAD) presented the critical Gap-Analysis with respect to inter sectoral linkages in the forest and water sectors. The participants of the workshop actively participated and deliberated on the findings.

At the end of the workshop Mr. Asif Jah Projector Director, LEAD Pakistan, Islamabad presented vote of thanks. He highly commended Syed Said Badshah Bukhari, Director General, PFI for providing excellent facilities and his team for moderating the workshop very effectively.



RANGELANDS ARE HOME TO BIODIVERSITY

Ashar Farooq, RMO

In simple words, rangelands are uncultivated lands dominated by native plants used primarily for grazing. Rangelands include grasslands, shrublands, deserts, tundras, riparian areas, and wetlands. They provide a variety of goods and services, including wildlife habitat, livestock forage, water, mineral resources, recreation, open space, and natural beauty.

On an area basis, rangelands constitute the largest category of generally non-tilled but extensively used land across the world. The range lands of the world occupy 47% of the earth's entire land surface. Data on the rangelands cover in Pakistan varies. It is estimated that around 60% of the total area of Pakistan is rangelands. These rangelands include alpine and sub-alpine pastures and Himalayan grazing lands in the north, arid and semi-arid rangelands including Pothwar scrub ranges, desert rangelands (Thal, Cholistan, Dera Ghazi Khan, Thar), Kohistan and Balochistan rangelands. Within such a vast area, rangelands differ considerably in plant community structure depending upon altitude, climate, rainfall, soil and the uses they have been subjected to by humans and their animals. Each different range type has its own unique assemblage of plants and animals.

Biodiversity is the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. Biodiversity represents the very foundation of human existence. Native plants are key components of the global biological diversity. These plants are an integral part of our ecosystem. It is estimated that some 270,000-425,000 vascular plant species are already known all over the world. In Pakistan, about 6000 species of flowering plants have been reported, including both native and introduced species. These plants include rangeland grasses, forbs, shrubs and trees. A wide range of medicinal plants are also found in the rangelands of Pakistan. Major share of contribution towards biodiversity is from rangelands based on area covered by rangelands all over the world and in Pakistan.

Rangelands also provide habitat for a wide variety of wildlife, especially ungulates or large grazing mammals. Major wildlife species found in the rangelands of Pakistan are musk deer, goral, antelope, chinkara gazelle, marcopolo sheep, urial, markhor, Sindh

ibex, black buck and nilgai. These ungulate species, of course, share the rangelands with numerous other birds and mammals.

When considering rangeland biodiversity, one usually thinks of flowering plants and wild animals. Yet, another important aspect of biological diversity is also the domestic livestock species that are found on rangelands. These animals have evolved over centuries and adapted to a wide range of environmental conditions found there.

The genetic diversity of the wild and domesticated plants and animals found on the rangelands is a valuable resource. All of the food that human beings consume comes from wild and domesticated species of plants and animals. However, rangelands are coming under increasing pressure from an expanding human and livestock population. Degradation of rangelands is a common problem in almost all the arid and semi-arid rangelands of the world due to overgrazing, invasion of invasive species and over-exploitation of natural resources. Degradation of rangelands has caused serious loss, both to plants and animals biodiversity. It is clear that loss of biodiversity has serious economic and social costs. Therefore, conservation and development strategies for rangelands must aim to maintain the condition of the rangelands and protect biodiversity and reverse the process of rangeland degradation.

“PLANT A HOPE”

Aurangzeb Ashraf Awan, CS

“The sky is held up by the trees
If the forest disappears, the sky-roof of the world will collapse
Nature and man will perish together”

American Indian Proverb

The importance of trees and forests in sustaining life on the planet earth is established. The trees act as natural carbon sink, imparting very significant role in combating global warming and thus climate change. The trees are not only responsible for regulating local precipitation system through evapotranspiration, they also provide protection to the soils against erosion, the most important is that forests provide habitat to birds, animals and human beings.

By means of photosynthesis, the leaves then combine the water and salts with carbon dioxide from the air to produce the nutrients, which serve as food for the tree. In this process, trees create wood, as well as many chemicals, seeds and fruit of great utility to man. Trees also absorb

carbon dioxide, the main greenhouse gas, from the air.

Immense pressure to harvest trees to meet different human requirements, i.e. as building material, fire wood for domestic and industrial uses, and the sacrifice of forests for the sake of other uses is resulting in different catastrophes. The ever-increasing population is destroying the existing forest cover, by clutching space for development of cities together with toxic emissions which in turn will lead to the destruction of humankind itself.

Global efforts to mitigate the worsening situation are being made for preserving the existing forests and plantations and afforestation of the blanks with suitable tree species. Tropical rain forests are of particular significance; although they now occupy less than six per cent of the land surface of the earth, they sustain more than half of the biological species on the planet.

Forests are carbon stores, and they are carbon dioxide sinks. In general a tree can absorb 28 pounds of carbon /year or an acre of new forest can sequester 2.5 tons of carbon annually, when they are increasing in density or area. A study in University of Leeds, shows that tropical forests absorb about 18% of all carbon dioxide added by fossil fuels, thus buffering some effects of global warming. Tropical reforestation can mitigate global warming until all available land has been reforested with mature forests.

The presence of forests or shrub cover on hillsides around rivers, generally ensures the smooth and sedate flow of waters. In the case of heavy rains, the presence of vegetation cover enhances the retention of rainwater in watershed areas, while reducing the chances of the abrupt swelling of rivers. Similarly, the presence of vegetation cover tends to better bind the soil together on hilly slopes which in turn enhances the absorption of rainwater while reducing the run-off into rivers. Lastly, trees and vegetation cover also prevent soil erosion and landslides, which can otherwise exacerbate the wrath of floodwaters in these watershed areas.

Keeping in view the importance of forests, the Federal Government of Pakistan, as well as Provincial Governments give utmost priority to increase forest cover in the country. For that purpose every year two tree planting campaign i.e. spring and monsoon are observed.

"He who plants a tree, plants a hope"

Lucy Iarcon, plant a tree

ASSESSMENT OF TECHNOLOGICAL PROPERTIES ON THE BASIS OF WOOD STRUCTURE

G.M.Nasir

Wood is a natural product, composed of different types of cells (wood elements), each influencing the specific property in wood. The **fibers** produce strength in wood, the **vessels** or pores provide channels for the flow of preservatives and removal of excessive moisture from wood, the **Tracheids** that are responsible for both strength and conduction in case of softwoods (due to the absence of fibers and vessels) and the **parenchyma** (food cells) influence resistance of wood against the insects and fungal attack.

Relative proportion, frequency and dimensional measurements of these wood elements in a wood help to evaluate the strength, durability, seasoning & preservation behavior, wood working, sawing and finishing properties of the wood.

Generally, the proportion of fibers relate with the density and strength properties of wood. Greater the volume of wood occupied by fibers, **better may be the density and strength properties** as the fibers are comparatively thick-walled cells than the other wood elements and constitute the mechanical tissue. Further, higher frequency (per unit area), greater wall thickness and narrow lumen width of fibers, also **contribute strength** in wood, but make the wood harder and **difficult to saw and work** as in Eucalyptus, Babul etc.

Sometimes, the volume of wood occupied by fibers is less; even then the wood may be better in strength due to higher frequency, greater wall thickness and narrow lumen width of the fibers as in Bakain and Mulberry. In the same way, in some wood species although the wood volume occupied by fibers is higher, the wood may be medium or light in strength because of lower frequency, less wall thickness and wider lumen width of the fibers as in Poplar, Mango, Maple etc. Moreover, the wood may be **soft and easy to saw and work**.

Proportion of vessels relates with the porosity of wood due to their comparatively larger diameter than the other wood elements. Higher the volume of wood occupied by vessels and wider the cavity of these cells, more the wood may be **easy to impregnate with preservatives** as the vessels are the main route for the flow of preservatives. Besides this, **seasoning behavior of the wood may also be better**

as the vessels are like drain pipes and moisture can move through them lengthwise as well as sidewise.

In some wood species, the vessels are smaller in diameter but their frequency (per unit area) is higher which tends to increase porosity of the wood as in case of Poplar.

Another aspect is that, lower the discrepancy between the relative sizes of longitudinal wood elements in a wood, more the wood will be fine textured and **better may be finishing properties** of the wood or vice versa.

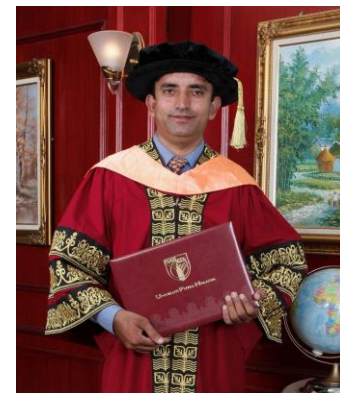
Parenchymatous cells occur both longitudinally and horizontally in wood. Proportion of parenchyma relates with the resistance of wood against the fungal and insects attack as they contain plant food material. Lower the percentage of wood volume occupied by parenchyma, **higher may be the resistance of wood to insects and fungi**.

Thus based on anatomical structure, technological properties of a wood can be assessed for its better processing before utilization in order to improve the quality of wood and ultimately the product.

JOINED BACK AFTER DOCTORATE IN FORESTRY

Dr. Muhammad Nawaz Rajpar has resumed his duty as Lecturer in Forestry on 05th October 2010. He has completed his Doctor of Philosophy with distinction (CGPA 3.94), in Wildlife Management from University Putra Malaysia (UPM).

His Doctorate work was based on field research "Avifauna Composition and Habitats in Freshwater Wetland Ecosystem in Malaysia".



Dr. Muhammad Nawaz Rajpar