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Revitalization and Retention of Indigenous Knowledge of Medicinal Plants in Afghanistan

Badakhshan Province is one of Afghanistan's most isolated areas. It experiences harsh winters and has low health security indicators compared to the national average. The area is home to a rich biodiversity, and for many communities is an important source of food and the only available source of medicine.

However, in mountain areas, population growth has caused increasing environmental pressures, as many people collect wood for fuel and timber, vegetation for fodder, and medicinal and aromatic plants for herbal remedies and food. This has resulted in the accelerated removal of vegetation from mountain slopes, causing land degradation and soil erosion. The impacts of climate change create further pressures, with longer and more frequent droughts compounding local environmental degradation. Due to these factors, populations of important medicinal plants are being depleted at an alarming rate. The loss of wild flora poses a threat to the food security and health sovereignty of mountain communities. At the same time, traditional knowledge of the properties of medicinal plants, their care, and how to prepare plant medicines, is being lost.

Key Messages

- Fostering holistic and culturally-relevant approaches to improving human health is important, and includes supporting the use of medicinal plants in regions with few other healthcare options.
- The preservation of knowledge of medicinal plants, of their care, and of traditional medicine preparation is dependent on the continuing use of medicinal plants. Therefore, encouraging the use of traditional medicines will be vital in efforts to preserve traditional knowledge and the health sovereignty of communities in Badakhshan Province, Afghanistan.
- There is an urgent need to identify plant species contributing to human health and well-being in order to develop a strategy to promote community resilience and to conserve biodiversity.

Fostering holistic and culturally-relevant approaches to improving human health is important, and includes supporting the use of medicinal plants in isolated communities.

For many people in remote areas of Badakhshan Province, accessing healthcare services is difficult. Four decades of civil war and geographical isolation have meant that this region is yet to receive government attention in the social and development sectors. The few government health and education institutions that do exist lack basic facilities and struggle to deliver services to communities. The majority of people in the remote mountain valleys in Badakhshan Province face poverty and food insecurity. These communities have few options other than to rely on the local natural environment to fulfil their needs, and the primary source of health care available to many of these communities is medicinal plants. Communities collect medicinal and aromatic plants from the mountains in summertime (Figure 1, 2). Some plants are used as fresh food or insect repellents while others are dried and stored for use as herbal remedies and food during the long winter months.

Maintaining the use of medicinal plants in these communities is important since access to and knowledge of medicinal plants allows communities to maintain health sovereignty, enabling them to select ecologically and socially appropriate medicines. Government policies aiming to improve the health of local communities in Badakhshan Province should promote socially and culturally appropriate health options which aim to give communities control over how they maintain or restore their health. In some communities, this will include supporting the use of medicinal plants and integrating their use with other standard healthcare options.

Preventing the decline of medicinal plants in Badakhshan Province

Local environmental conditions in Badakhshan have undergone significant changes in recent years. Medicinal plants that were abundant 10 years ago in mountains and near grazing lands are now disappearing rapidly, and with each passing year, community members are forced to travel further into the mountains to collect medicinal plants for family needs **(Figure 3)**. Some species that were locally abundant only a few years ago and collected for sale at local markets are now gone from these areas. Mountain grazing lands and pastures are the major source of medicinal and aromatic plant supply, and the disappearance of medicinal plants from their natural habitats is due to unsustainable collection rates, overgrazing, and prolonged periods of drought. Loss of these medicinal plant species threatens health sovereignty.

There should be clear government policies on managing medicinal and aromatic plant populations in mountain grazing lands. To protect and ensure the sustainable management of medicinal plant resources the following steps are recommended:

- Implementation of government regulations to manage grazing areas and limit the unsustainable extraction of valuable and marketable medicinal and aromatic plants
- Introduction of deferred or rotational grazing systems within communities
- Basic trainings for farmers/graziers and plant collectors on when and how to harvest medicinal plants without inhibiting coppicing or rejuvenation
- Formation of community-based natural resources management committees or custodian communities, who are provided with basic training on resource management systems. Village committees could then oversee the protection and sustainable management of the forest, pastures, and medicinal plant resources.

Revitalizing knowledge of medicinal plants and encouraging use

Historically, communities in the Pamir Mountains in Badakhshan have been highly dependent on local plants for food, fodder, and as medicines to treat human and animal diseases. There used to be many famous herbal healers in almost all major villages who would treat patients with different local plant products and herbal recipes. However, with the introduction of allopathic (Western) medicines around two decades ago, the majority of the younger generation began preferring these new medicines, which are available in major towns and villages in Badakhshan Province. This shift in medicine use provided rapid relief from disease but few families could support the cost of these medicines. As a result of the shift in medication preference, fewer medicinal plants are collected from the mountains, and

Figure 1: Children collecting harmal seed *(Peganum harmala)* in the Wakhan corridor, Badakhshan province, Afghanistan, June 2015. This plant is used as an insect repellent and planted in kitchen gardens.
Photo: Munira Karamkhudoeva

Figure 2: Collecting marshmallow *(Althaea officinalis)* near Ishkashim village, Badakhshan Province, August 2015. Marshmallow root is used to treat kidney stones, and the leaves and stem to treat coughing.
Photo: Munira Karamkhudoeva

knowledge about medicinal plants is being lost. There are few people nowadays who know how to use which medicinal plant for what purpose. Moreover, as described above, access to these plants is declining because of environmental pressures. The loss of knowledge also means that many communities in Badakhshan are unaware of the importance of these plants for their food, health, or local biodiversity.

However, over the last decade, there has been a trend back to homeopathic medicines, brought about by education and awareness, and now many people are again demanding organic products. In the Pamir region in Badakhshan Province there are communities which never had access to allopathic medicines and still rely on wild medicinal plants and animal products for health care and therapeutics. Thus, it is increasingly important to rekindle knowledge relating to medicinal plant use. Concrete steps need to be taken by the government and civil society organizations in Afghanistan to conserve and promote important medicinal and aromatic plants upon which rural communities' health and livelihoods depend. The following activities could help to rejuvenate knowledge about medicinal plants:

- Awareness-raising among the public by relevant government bodies and NGOs to educate about the importance of medicinal and aromatic plants for human food, nutrition and accessible medication.
- NGO and civil-society organisation trainings for farmers and pastoralists on proper methods for harvesting medicinal plants.
- On-farm cultivation of some marketable medicinal and aromatic plants, with support from NGOs.

Supporting women in processing and marketing medicinal plants

Women in Badakhshan Province are traditionally engaged in managing the household and overseeing family food, nutrition, health care, and hygiene. Some women possess an enormous knowledge about plants and plant products, and how to prepare recipes for treating a number of human ailments and diseases. They collect many medicinal plants from the field as well as from high mountain pastures while herding their animals and then dry the plants for winter use **(Figure 4)**. Sometimes whole plants are dried and kept in jars or muslin bags for the wintertime, while other plants may be stored in powder form. Despite extensive knowledge and experience with herbal medicines, poor village women have no information on proper processing and marketing of their products to earn income. Through the support of NGOs, women farmers could be educated about proper processing, packaging and marketing of valuable medicinal and aromatic plants in order to increase household incomes.

Figure 3: Collecting jambilak *(Ziziphora pamiroalaica)* from rocky mountain slopes is an arduous task but declining populations of this species force community members to walk longer distances to obtain medicinal and aromatic plants. Jambilak is used to treat high blood pressure.
Photo: Munira Karamkhudoeva

Assessing and identifying important plant species to develop resilient communities and conserve biodiversity

No comprehensive study has been conducted in Badakhshan Province that has systematically identified and recorded the plants growing in the region. The wide range of altitudes and ecological conditions support diverse indigenous flora and fauna, many species of which are important to the health of local communities. There is an urgent need to assess and identify important plant species contributing to human food and health in order to make a strategy for developing resilient communities. Detailed scientific studies are also needed to assess general vegetation, and to develop strategies for the protection, conservation and sustainable management of local biodiversity through custodian communities.

Figure 4: Women show the medicinal and aromatic plant products that they have stored for use during the winter in Ishkashim village, Badakhshan Province, September 2015.
Photo: Munira Karamkhudoeva

Case Study from the Pamir Region of Badakhshan Province in Afghanistan

CAARF fellow Munira Karamkhudoeva conducted an ethno-botanical survey in the Pamir region of Badakhshan Province in Afghanistan during 2014-2015. She conducted fieldwork in 4 districts (Sultan-Ishkashim, Wakhan, Zebok, Shugnan), covering 78 villages. Interviews and group discussions were carried out with a diverse range of respondents, and included herders, vendors, the heads of households, women farmers, women in homes, teachers, NGO staff, and pastoralists. Questions focused on the uses of plant species in medicine and as food. Karamkhudoeva also collected and identified many plant species growing locally and noted their medicinal uses. Information about native medicinal plants was collected from almost 300 individuals, including herbal practitioners, young people, women, men and elders. A semi-structured questionnaire was used to extract information on types of ailments treated by medicinal plants and the specific plant parts used.

The study revealed that many medicinal and aromatic plants are commonly used by the communities in the study area for food and to treat a number of human ailments (Table 1). Results suggest that retention of indigenous knowledge of medicinal plants is important and fundamentally dependent on its use. Knowledge of medicinal plants is not embedded in people's minds but in their relations with the environment.

Local Name	Scientific Name	Local uses
Jambilak	*Ziziphora pamiroalaica*	For treating high blood pressure
Zira / black cumin	*Bunium persicum B.Fedtsch*	For treating high blood pressure, indigestion, and used as a spice
Pudina /withn /mint	*Mentha sp.*	For treating indigestion, making tea and to add to food for aroma, also for treating high blood pressure
Zagheer /flax	*Linum usitatissimum*	Used to treat kidney diseases (mixed with walnuts)
Piyozkohi /wild onion	*Alium sp.*	Eaten as a salad
Seerekohi / wild garlic	*Alium sativum*	Used as food, as a spice, and as an insect repellent
Tut / mulberry	*Morus alba*	An important source of food, as a second bread; eaten fresh and dried and as a ground powder cake. Can be stored for long periods. Also used for fruit juice, and as a decoction used to treat kidney diseases
Nosh / apricot	*Armeniaca vulgaris*	Eaten for maintaining a healthy heart, apricot stones used for making food, seeds of sour apricot used for cosmetics (colour for eyebrow)
Qaraqat	*Ribes janczewskii Pojarkova*	Fruits are used in jam, and in tea to combat high blood pressure
Zargul	*Berberis heterobotrys E. L. Wolf.*	Root is used for treating gum diseases
Zirdosk	*Achillea millefolium L.*	Flowers and leaves are used to treat diarrhea, and as an insect repellent
Varkh / Talkhak	*Artemisia absinthium L.*	Used as an insect repellent
Aspand	*Peganum harmala*	Used as an insect repellent

Table 1: Medicinal and aromatic plants used in the Pamir region of Badakhshan Province, Afghanistan and their uses.

Further Reading

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Mountain Societies Research Institute

The University of Central Asia Graduate School of Development's Mountain Societies Research Institute (MSRI) is an interdisciplinary research institute dedicated to addressing the challenges and opportunities within Central Asian mountain communities and environments. MSRI's goal is to support and enhance the resilience and quality of life of mountain societies through the generation and application of sound research.

MSRI has five objectives: To generate knowledge on mountain societies through original scientific research; to serve as a knowledge hub for scholars, development practitioners, and policy makers; to enhance regional capacity to conduct sound research relevant to mountain societies; to inform policy and practice through engagement with key development partners; and to disseminate knowledge among mountain stakeholders, including the co-development and co-teaching of UCA's academic programmes. MSRI, together with its partners, actively works to transfer knowledge to policy and practice aimed at improving the quality of life for people of the mountain areas in Central Asia. For more information on MSRI, please visit: http://www.ucentralasia.org/msri.

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