

CLP Internship title: Assisting in development new ideas on threatened fruit trees and bulbs for FFI TJ programme.

Tajikistan, GBAO, February – December 2020

Objectives: This report is representing the outcomes of research on medicinal plants of GBAO. The aim of this research was to identify the status of medicinal plants in the area.

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## Executive Summary

The internship aim was working closely with the FFI Tajikistan to deliver the fruit and nut threatened tree, and bulbs conservation project, scope the development of new work on medicinal plants. This was also include carrying out specific areas of desk and field research to support the FFI Tajikistan team to identify new project themes, sites, and partners.

Providing assistance in gathering information on key new work areas including: bulb species, medicinal plants, over grazing and pasture management in the project sites. Recommendations on developing of pasture management plan and other new ideas in the project sites of fruit and nut trees and bulb grasslands.

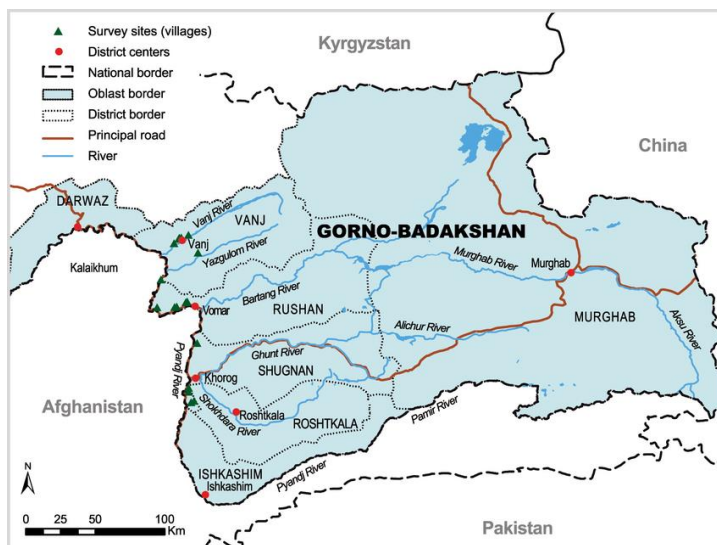
The objective of the internship is providing FFI Tajikistan with the results of research and recommendations that will help to identify potential new areas or work, such as measures for mitigating climate change impact on target tree species, threatened bulb species, medicinal plants and market opportunities for project sites.

As the result of the research it was found that 32 species of plants in GBAO area of Tajikistan are threatened and almost all of them are very valuable for local population for medical purposes, as people have limited possibilities for official medical health care in remote areas.

## Introduction

The internship took place in GBAO region. The aim of this internship is to conduct a research and produce a report on the status of medicinal plants in this area, as it is home to many unique and endemic plants. As well as identify the vulnerable and endangered species and the reasons of their disappearing. During the internship NGOs and individual practitioners that work on the producing and conservation of medicinal plants were investigated. Namely the area of GBAO of Tajikistan is very significant for the conservation project, as there are many endemic plants, including medicinal plants.

During the research there were meeting with some of the main practitioners of the medicinal plants in the region. The meetings took place in Ishkashim district.



The map of Gorno-Badakhshan Autonomous Region<sup>i</sup>

## **Aim and objectives**

The overall aim of the internship is identifying new ideas for projects. The main objective of the internship was assisting in development new ideas on threatened fruit trees, bulbs and medicinal plants for FFI TJ programme. But during the internship period more attention was asked to be addressed to medicinal plants, for bringing ideas for new projects.

## **Activities and Methodology**

During the time of the internship there were conducted meetings and interviews with the practitioners of herbal medicine. One questionnaire was used for these interviews (see Appendix 1).

Four persons were chosen for the interview, but only 2 of them were able to meet and answer to interview questions. These are the most famous herbal medicine practitioners in the region.

There was also desk research on the medicinal plants, their status in the region; meetings with the representatives of the Department of Environmental Protection, where Red Book of Tajikistan was shared with intern.

It was also observed that in the region drug stores there are packed medicinal plants in sale, that are produced mainly in Dushanbe. There is also one that itself pack and prepare extracts and sell the dried widely used plants, like *Glycyrrhiza glabra L.*, *Chamomilla Recutita Rauschert*, *Roza canina*, *Plantago major L.*, *Mellisa officinalis L.*, *Mentha piperita L.*, *Hippophae rhamnoides L.* and others.

## **Outputs and results**

As the result of the interview it was found out that 48 medicinal and cultivated food species and 41 wild medicinal species are used for the treatment of different diseases. For the treatment purposes the practitioners use methods and different part of the plants according to diseases. It was said that day to day people more refer to herbal medicine and ask for recommendations. Unfortunately, doctors in medical facilities usually do not recommend herbs, but when medical drugs do not help people start the treatment with medicinal plants. People usually come straight to the practitioners, rather than search in drugstores for medical herbs. According to Dr. Shirinbek last year 500 – 600 persons referred to him for treatment with herbs.

During the interviews it was mentioned that many plants that they use for medical purposes are vulnerable now, because of improper and over harvesting and using for livelihood, such as over gazing, as a firewood and other similar purposes. For instance, it was mentioned that *Berberis heterobotus* and *Hippophae rhamnoides L.* are mainly over collected for firewood; *Caparis* were widely used as a food during the crisis in time of civil war and was over collected; *Peganum Harmala L.* and *Helichrysum* are widely used for religious purposes as well as medical and over collected.

It was noticed as well that when other people are used for collection of medicinal plants they are trained well before this. They are aware of all the parts of the plant, the calendar and rules of its collection. Moreover, it was said that the rules of drying should be strictly followed, otherwise all the contains will be lost.

## **Achievements and impacts**

As it was mentioned above about investigation of practitioners and NGOs, the first meeting and interview was with one of the experts with good experience in Ishkashim district – Mirzoev Odinamahmad, Biologist, that established and headed one of the first small NGO “Hikmat” for collection and cultivation of plants for medical use. In this factory were produced and sold extracts, as after the collapse of Soviet Union medical drugs were not available, and people from remote areas could not afford them. That is why it was mutual profitable for the owners and consumers. The main raw plants for producing extracts were *Hippophae rhamnoides L.* (buckthorn), *Glycyrrhiza glabra L.*, *Plantago major L.* (plantain), according to Odinamamad. He also mentioned that there are many species that were used, that day to day become rare. Today the NGO is not working, but Odinamahmad Mirzoev still continue treatment with medical plants, many people refer to him for recommendations. According to him there are many herbs that he uses, are becoming vulnerable. It was also mentioned that people do not pay much attention to cultivation of such species.

The second meeting was with one of the main practitioners of herbal medicine in the region doctor-specialist Shirinbek Davlatmamadov – surgeon, phytotherapist, researcher, honored worker of the Republic of Tajikistan. As a practitioner of scientific medicine and a connoisseur of traditional one, Dr. Shirinbek Davlatmamadov, being an honorary member of the Association of herbalists and traditional healers of the Republic of Tajikistan, participated at II-nd (2007) and III-rd (2008) International Congress of Herbalists and Traditional Healers of the Republic of Tajikistan. At the presidium of III-rd congress, in June 2008 he was elected as a head of the Association of herbalists and folk healers of the Gorno-Badakhshan Autonomous Region.

In 2009, he completed a retraining course “Medicine of the Peoples of the East” (Tibbi Khalkii Shark) specializing in “Herbal medicine”, at the Republican Center for Scientific and Clinical Medicine of the Health Ministry of Tajikistan.

Since November 2006, Shirinbek Davlatmamadov has been the director of «Jamshed» limited liability company, currently «Jamshed-1», and since September 2010, he is the director of the «Gulu Giyoh» public organization. Between 2011 and 2013, under the aegis of The Christensen Fund, Gulu Giyoh worked on the revival of natural medical practices (herbs and mineral springs), as well as the preservation of Ishkashimi language in the Badakhshan region of Tajikistan. The conducted activities included the cultivation of local medicinal herbs, according to traditional Pamiri formulas.

Under the leadership of Shirinbek Davlatmamadov, were made significant studies of the history, ethnography, and bioculture of Ishkashim district people, and the results of these studies were printed and distributed books as (Badakhshan Medicinal Plants and their use) “Nabototi darmonbakhshi Badakhshon va istifodabarii onho” (2012), (Phytotherapist’s handbook) “Dasturamali gyohpizishk ”(2017), (Atlas of Medicinal Plants of Badakhshan) “Giyohnomai Badakhshon” (2018). These books were highly appreciated by specialists of the Republican Academy of Sciences, culture experts and a wide network of readers. Below are some of his significant scientific works in herbal medicine:

1. Medicinal plants of Badakhshan and their use (Nabototi darmonbakhshi Badakhshon va istifodabarii onho). Irfon, Dushanbe, 2012, 144 page
2. Adhesion treatment (Gildarmoni). Ishkoshim-Khorugh, 2014, 48 pp.
3. Calendar of the collection of medicinal plants Badakhshan (Takvimi jamovarii nabototi darmonbahshi Badakhshon), 2015
4. Phytotherapist Handbook (Dasturamali giyohpizishk). Irfon, Dushanbe, 2017, 256 pp.
5. Atlas of medicinal plants of Badakhshan (Giyoanomai Badakhshon). Polygraph-groups, Dushanbe, 2018, 224 pages.
6. Encyclopedia of traditional medicine (Donishnomaii Tibbi Mardumi), 2019<sup>ii</sup>

After the observations and interviews it came out that herbal medicine is still very important for people in remote areas, as they have limited accessibility to medical drugs, and it should be controlled in a way that does not disturb the nature. Because usually people in villages do not have sufficient knowledge in collection of medicinal plants and the amount of it, so they collect more than they need or take it entirely, driven by the principle of “the more is better”.

Both interviewees mention that there are not any acting NGOs in this area for conservation of medicinal plants, that can protect species both from the human factor and climate change.

### **External influences and changes to internship**

During the time of this internship the large wave of the COVID – 19 pandemic was emerged, that disturbs the overall life and work of people around the world. It also affected the process of research, as it was hard to meet with people and travel. Targeted persons or their family members were found infected and they could not take part in the interviews or discussions, and even answer the questions that were sent by e-mail. This also negatively affected the results of interview, as two scholars were not available.

### **Conclusion**

The research outcomes showed that indeed medicinal plants are vulnerable, because of several reasons. First it is popularization, as population getting more and people have no land to construct houses, they go further to the mountains. Second is over grazing of livestock. The third is improper collection of the species, either for food, firewood or medical purpose.

After I got engaged in conservation focused organization, first step will be the awareness raising activities of local communities on collection and cultivation of medicinal plants, and then benefits of herbal medicine and the importance of conservation of natural resources, by identifying endangered and vulnerable species and protecting them; proper collection, using and storing of species.

### **Acknowledgements**

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## Appendices

### Appendix 1. Questionnaire for the practitioners of medicinal plants:

1. Which plants are you using most of all?
2. What are the diseases you are curing with these plants?
3. Do many people prefer to use medicinal plants than medical drugs?
4. Which plants that you are using become vulnerable and threatened?
5. What are the reasons?
6. Do you use somebody else support to collect plants?
7. If yes, are you inform them on ways of collection and not to hurt the plant before that?
8. Do you follow all the rules for the drying of plants?
9. Do you use any market to sell your production?
10. Is this business profitable?

### Appendix 2. Herbs that are mostly used for medical purposes:

#### Description of some medicinal plants found in the territory of Badakhshan

##### 1. Immortelle

*Latin* – Helichrysum arenarium L. Moench (Anaphalis virgata Thoms)

##### 2. Persian Wormwood

*Latin* – Artemisia persica Boiss.

##### 3. Globe thistle

*Latin*– Echinops maracandicus Bunge

##### 4. Red raspberry

*Latin* – Rubus idaeus

##### 5. Cultivated oat

*Latin*– Avena sativa L.

##### 6. Common barberry

*Latin*–Berberis vulgaris L.

##### 7. Stinging Nettle, great nettle

*Latin* – Urtica dioica L.

##### 8. Garden sage

*Latin* – Salvia officinalis L.

**9. Blue-sailors**

*Latin – Cichorium intybus L.*

**10. Licorice**

*Latin – Glycyrrhiza glabra*

**11. Pot marigold**

*Latin – Calendula officinalis L.*

**12. Asian mint**

*Latin – Mentha Asiatica Boris.*

**13. Clover**

*Latin – Trifolium pratense L.*

**14. Bog rose**

*Latin – Rosa huntica Chreshan*

**15. Syrian rue**

*Latin – Peganum harmala L.*

**16. Ziziphora**

*Latin – Ziziphora pamiroalaica Juz.*

**17. Absinthe**

*Latin – Artemisia absinthium L.*

**18. Blackcurrant**

*Latin – Ribes nigrum L.*

**19. Sea buckthorn**

*Latin– Hippophae rhamnoides L*

**20. Chamomile**

*Latin – Matricaria chamomilla L.*

**21. Common wormwood**

*Latin - Artemisia vulgaris (mugwort or common wormwood)*

**22. Caraway**

*Latin – Bunium persicum (Boiss), Bunicum cyminum L.*

**23. Dandelion**

*Latin -Taraxacum*

### Appendix 3. Endangered endemic species from the Red Book of the Republic of Tajikistan

1. Sumbul Ferula (*Ferula sumbul* (Kauffm.) Hook. Apiaceae family) (rare endemic) – Ферула Сумбул
2. Common Fig (*Ficus carica* L.) Moraceae Family) – Инжир обыкновенный (Смаковница обыкновенная) (Анчир)
3. Rosanova's capers (*Capparis rosanoviana* B. Fedtsch. Capparaceae family – Каперсы Розанова (Каварак)
4. Persian Bunium (*Bunium persicum* (Boriss) B. Fedtsch. Apiaceae family) - Буниум Персидский (Зира)
5. Giant Bulrush (*Arundo donax* L. Poaceae family) (endemic to Southern and Central Tajikistan) - Арундо тростниковый (Фараб (Севачӯб))
6. Badakhshan Cephalopodium (*Cephalopodium badach schanicum* Korov. Apiaceae family) (rare endemic to GBAO) – Головоног Бадахшанский (Шахкамол)
7. Rosenbach Onion (*Allium rosenbachianum* Regel, Alliaceae family) (endemic to West Pamir and Alai) – Лук Розенбаха (Гуши бузак)
8. Small Onion (*Allium minutum* Vved. Alliaceae family) (very rare endemic to Peter I mountain range) - Лук мелкий (Пиёзак)
9. Badakhshan Taraxacum (*Taraxacum badachschanicum* Schischk, Asteraceae family) (rare endemic to West Pamir and Alai) - Одуванчик бадахшанский (Ширдораки Бадахшон)
10. Shughnan Taraxacum (*Taraxacum schugnanicum* Schischk. Asteraceae family) (endemic to West Pamir (Badakhshan)) – Одуванчик шугнанский (Ширдораки Шуғнӣ)???
11. Darvoz Aquilegia (*Aquilegia darwazi* Korsh. Ranunculaceae family) (rare endemic to Pamir and Alai) – Водосбор Дарваза (Уқобгул)
12. Vavilov's Almond (*Amygdalus vavilovii* M. Pop. Rosaceae family) (rare and endemic) – Миндаль Вавилова (Ширинбодом)
13. Oriental persimmon (*Diospyros lotus* L. Ebeneseae family (Endangered ancient tree, growth habitat is gradually decreasing) – Хурма обыкновенная (Чилванг (Ангурчӣ))
14. Punic Pomegranat (*Punica granatum* L. Punicaceae family) (Endangered)- Гранат (Анор (Руммон))
15. Pirus Kayon (endangered) - Груша Кайон

### Bibliography

1. *Red List of Tajikistan*
2. *Biography of Doctor Shirinbek*, <http://gornobadakhshan.org>

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<sup>i</sup> The survey area in the Western Tajik Pamirs, GBAO Province Map by Federik Van, Internet source

<sup>ii</sup> Biography of Dr. Shirinbek <http://gornobadakhshan.org>