

# KAZAKHSTAN

ҚАЗАҚСТАН

*Extracting novel wound-healing and  
anti-inflammatory phyto-products from  
liquorice root*





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## SETTING THE SCENE

The Republic of Kazakhstan is located at the heart of Eurasia. The length of the country is 1 600 km from north to south and 3 000 km from west to east, with a total area of 2.72 million km<sup>2</sup>.

The fauna of Kazakhstan includes about 500 species of birds, 178 species of mammals, 49 species of reptiles, 12 species of amphibians, 107 species of fish and cyclostomes in rivers and lakes, and about 100 000 species of invertebrates, including 50 000 species of insects.

The flora is represented by 5 754 species of vascular plants, 4 851 species of fungi, 2 000 species of algae, 516 species of mosses and 485 species of lichens. Among the plants, 14% of species are endemic. Forest plant communities include 68 tree species, 266 species of shrubs and 433 species of herbs.



The agricultural flora is represented by 226 species of wild crop relatives that determine the genetic potential of 24 crops. Valuable plant genetic resources also include 10 species of currant, wild relatives of carrots, purslane, asparagus, onions, garlic, and 120 species of tulips. A gene pool of global significance for fruits includes Sievers and Nedzvetski apples, apricots and others.

Kazakhstan produces more than 70 varieties of crops, 68 varieties of fruits, and more than 60 varieties of vegetable and melon crops. More than 20 varieties of potatoes are bred and well adapted in the country. Among other things, the UNDP-GEF Global ABS Project in Kazakhstan facilitates and supports bioprospecting research on genetic resources that come from the following key plant species: *Allochrysa gypsophyloides*, species of *Glycyrrhiza*, *Rhaponticum carthamoides*, *Rhodiola rosea*, *Ferula assa-foetida* and species of *Cistanche*. Another species to which the project has paid attention is *Glycyrrhiza glabra* and its genetic resources. Liquorice is the root of *G. glabra* from which a sweet flavour can be extracted. The liquorice plant is an herbaceous perennial legume native to Kazakhstan. It has a wide range of substances useful to the human body.





## Biodiscovery case

The Kazakhstan company “Zerde-Fito” LLC acknowledges the fundamental role of traditional knowledge as an important ‘lead’ for their work on genetic resource-based product discovery and innovation, as well as in its efforts towards biodiversity conservation and sustainable marketing.

The company has received a certificate of recognition that they produce and process the medicinal plants in compliance with Chinese traditional medicine standards and that the project is compliant with an ABS permit from Kazakhstan. The permit has been formalized through a benefit sharing agreement with a Chinese pharmaceutical company, jointly with the local communities of the south and southeastern part of Kazakhstan. This agreement is the first benefit sharing agreement in a Central Asian country with local communities for marketing of medicinal herbs.

“Zerde-Fito” LLC, which is the largest company in the Central Asian region, processes and produces phyto products. Today the company occupies a leading position among domestic producers of medicinal plant preparations, covering more than 80% of the market.

“Zerde-Fito” LLC regularly conducts research and development on medicinal and aromatic plants and develops an extract from liquorice and other plants. Liquorice has a wide range of substances useful to the human body. Its chemical composition is diverse: in the roots and rhizomes it contains the saponin derivative glycyrrhizin – a substance that is a mixture of potassium and calcium salts of tribasic glycyrrhizic acid. In addition, more than 27 flavonoids, ascorbic acid, steroids, estriol, a little gum, tar, essential oil and asparagine have been

identified in the plant. Flavonoids have multifaceted effects on the body – spasmolytic, wound-healing and anti-inflammatory. The therapeutic effect on the body of liquorice root is due to its content of carbohydrates, glucose, fructose, starch and cellulose, as well as organic acids – fumaric, malic, citric and succinic. Liquorice as raw herbal plant material is widely marketed and exported to China and to European countries with the market name “liquorice root”.

The terms of the Benefit Sharing Agreement are applied through notary-verified agreements between the company and the community, with which all of the monetary benefits are being shared. With a typical community-based contract, the company has agreed on all aspects of monetary benefits in advance with the community. The company makes a prepayment for the cultivation and conservation of the medicinal herbs, and when the community collects and delivers the medicinal herbs to the company, the latter makes final payments to the community based on the contract.

In the meantime, the company has provided technological equipment and tools for the local community to enhance their effectiveness for both the herbal plant’s conservation and its management. Such benefits are among the non-monetary benefits that are included in the agreement, which also refers to the exchange of information and development results, collaboration, cooperation and contribution to training and capacity building, reinforcement of the technology-transfer capabilities, creation of institutional capacity, human resources and materials to reinforce the conservation and sustainable utilization of the genetic resources.



## EYEWITNESS STATEMENT



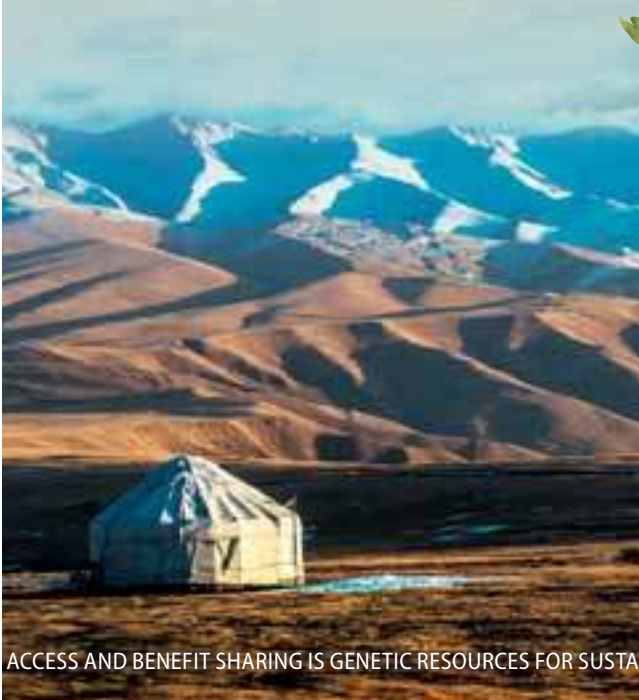
*“As a plant legal expert I have noticed that there are dozens of herbal plants which are not yet legalized due to unclarities on their origins, such as Ferula assa-foetida. Ferula should be legalized nationwide because it can help people from many different walks of life with their medical issues and also maximize revenue for the government. Legalization will positively impact the economy of most of the herbal farmers. Medical ferula is also constantly used as a painkiller in the place of Vicodin and other prescribed drugs.”*

**MR ARKADY RADIONOV**, legal support and adviser to the local community to protect both their traditional knowledge and newly developed intellectual property rights



*“For many common infectious diseases herbal therapy using liquorice offers more effective and more wholesome treatment than traditional or synthetic medicines.”*

**DR ANATOLY MISHENKO**, business partner who, along with **MRS KURALAY KARIBAYEVA**, provides technical support for the community and the company





## In fine focus: SDGs implemented by the biodiscovery case

The biodiscovery case contributes to implementation of the following SDGs:

- SDG 1 (Target 1.2): Incomes of 211 farmers (91 men and 120 women) will benefit from increases of 15 to 61% as a result of improved land productivity due to the use of genetic resources of liquorice; cultivation of high value genetic resources such as this would also have other environmental sustainability perspectives.
- SDG 1 (Target 1.3): Access to economic resources facilitated for the poor and vulnerable (especially previously displaced people and women) through job creation on sustainably managed genetic resources (19 new family users throughout the district with total restored genetic resource sites of 1 200 ha, creating jobs for 145 households (seasonal workers who come from the neighbouring regions) and 33 (permanent local residents) and through recruitment of (31) local residents (mostly women) to work in nurseries.
- SDG 3 (Target 3.9): Well-being and health of population in Kazakhstan as well as abroad to be improved due to wider processing and utilization of liquorice.
- SDG 15 (Target 15.1): Conservation, restoration and sustainable use of dryland ecosystems will be enhanced to over 1 200 ha.

Further, "Zerde Fito" LLC, through its partnerships, have established massive areas of recultivation and processing plants in eastern and southern parts of Kazakhstan. This project has created employment opportunities across the value chain. A total of about 1 200 people, of whom 71 % are women, have been employed in the process.





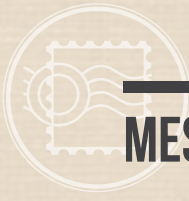
## Legal and political enabling environment for ABS and the Nagoya Protocol

Kazakhstan ratified the Nagoya Protocol on ABS in 2015. Kazakhstan attributes great importance to the Nagoya Protocol on ABS. It has made significant progress since it became a contracting party to the CBD in 1977, by taking policy and legislative steps towards promoting conservation, sustainable utilization of wild species, biological resources and associated traditional knowledge, while also promoting the fair and equitable sharing of benefits arising from their utilization, namely through the National Biodiversity and Strategic Action Plan (NBSAP) and Environmental Code of 2007.

The inspectorate of the protected areas under the Committee of Forestry and Wildlife has been issuing bioprospecting permits since the coming into effect of the *Bioprospecting, Access and Benefit Sharing Regulations* (BSAP regulations) of 2015, which were developed in accordance with the Environmental Code

of 2007. The BSAP regulations, which came into force in 2007, regulate the bioprospecting activities through a permit system. The UNDP-GEF Global ABS Project is supporting the upgrade of the existing legislative framework on ABS with the view to complying with the new obligations under the Nagoya Protocol. All legal and policy instruments have been reviewed at the national level with the view to harmonizing them and to fulfill the country's obligations under the Nagoya Protocol. Moreover, the ABS legal mainstreaming activities pursued by the project facilitate the implementation of the Nagoya Protocol in the country by enhancing legal certainty and transparency of the ABS procedures and supporting the implementation of monitoring mechanisms to encourage oversight of the utilization of genetic resources along the value chain, including through the internationally recognized certificate of compliance.





## MESSAGE FROM AN SDG ADVOCATE



*“To date the Nagoya Protocol echoes the sovereign rights of Kazakhstan over its natural resources and stipulates that Prior Informed Consent (PIC) with the custodians of the genetic resources and associated traditional knowledge is a prerequisite for adequate access by national and international users. It is very important to urge that we now can negotiate Mutually Agreed Terms (MAT) using all needed conservation prerequisites that clarify the use of genetic resources between the parties based on clear rules and procedures”.*

**DR ANATOLY MISHENKO**, business partner who provides technical support for the community and the company

Partnership and collaboration between traditional knowledge holders, the scientific community, research institutions, and small and medium entrepreneurs are critical for ABS success. The development of national legislation on ABS, with the full and effective participation of key stakeholders, is instrumental in facilitating access, ensuring that PIC is obtained, leading to negotiations and entering into MAT. Clearly defined holders of traditional knowledge coupled with legal representation is key to many successful benefit sharing agreements of ABS projects.

Harmonization and comprehension of the legal and policy documents including the establishment of a clearing-house mechanism is important to ensure transparency of

the national ABS system and possibly additional income generation for traditional knowledge holders.

Key to the UNDP-GEF Global ABS Project is the full mainstreaming of the ABS principles into the legal and policy instructions, including with a view to ensuring that the cultivation of Kazakhstan indigenous genetic and biological resources reduces pressures on wild species thereby promoting their conservation and sustainable use. The cultivation site and processing facility for high-quality extracts that is supported by the ABS Project is located in a rural area, where there is a moderate level of unemployment, hence the ABS Project also aims to create new jobs at the community level in the cultivation site as well as in the processing facility.

