

## **Wild Plant Harvest in Armenia: An Overview of the Sector and Government Strategies on Regulation, Conservation, Protection and Use of Biodiversity.**

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Republic of Armenia ratified a number of international environmental treaties, conventions and their protocols related to biodiversity<sup>1</sup>. As early as in 1999 a *Biodiversity Strategy and Action Plan of the Republic of Armenia* (BSAP) was developed and submitted to the *Secretariat of the Convention on Biological Diversity*. Following the acceptance of the Action Plan, the government committed to adopt the documents related to the BSAP. These include **(a)** the improvement of legislative and governance frameworks, **(b)** the establishment of new specially protected nature areas (SPNA), **(c)** the establishment of preconditions for biodiversity inventory and monitoring, **(d)** the promotion of scientific research, and **(d)** the implementation of activities on public awareness raising and ecological education<sup>1</sup>. The government acknowledges the role of biodiversity to be equally important for safeguarding ecosystem services in terms of regulation of soil and climatic conditions, provision of clear water, mitigation of the consequences of natural disasters and others.<sup>1</sup> Included in the services provided by ecosystems are **provisioning** (e.g., food, clean water and air, fuel resources), **regulating** (e.g., climate, prevention of natural disasters, epidemics and erosion, bioenvironment), **supporting** (e.g., soil formation, photosynthesis, cycling of nitrogen, carbon, oxygen and water), and **cultural** (e.g., aesthetic, religious, scientific-cognitive, social and spiritual values, traditions, recreation). The above-mentioned BSAP was planned for the period of 2000-2004. Thereafter significant changes have been registered in the fields of biodiversity-related legislative improvements and the strengthening of institutional frameworks, among others.

In 2010 a *Strategic Plan for Biodiversity 2011-2020 under the Convention and Aichi Biodiversity Targets* was adopted by the parties to the convention during the 10<sup>th</sup> Conference of Parties in Nagoya, Japan. In this document it is stated that “[T]he well-being of Armenia’s population is greatly dependent on availability of biological resources, which are the strategic resources for the country, equally to underground resources.” Furthermore, the document identifies the useful species of flora and macrofungi of Armenia, which are used as food and are represented as follows: **(a) Edible plants – about**

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<sup>1</sup> Strategy of the Republic of Armenia on Conservation, Protection, Reproduction and Use of Biological Diversity, 2015.

200 species; **(b)** Wild fruits and berries – about 120 species (about 40% of dendroflora of Armenia); **(c)** Honey plants – about 350 species; and **(d)** Edible mushrooms – 290 species. The overuse of biological resources (*incl.* economically valuable species as well as rare species and those under the threat of extinction) is seen as one of many factors having an adverse impact on the status of biodiversity in Armenia<sup>1</sup>. The commitments of Republic of Armenia to further strengthen regulations governing biodiversity have been reiterated again in 6<sup>th</sup> National Report to the Convention on Biological Diversity<sup>2</sup>. The implementation of these international commitments, no doubt, contributes to effective environmental protection and biodiversity conservation.

A 2010 study of *legal and institutional framework for value chains based on biodiversity products and respective business practices* found numerous contradictions and non-regulated mechanisms that required regulation<sup>3</sup>. The scope of this study was to analyze **(a)** existing political, legal and institutional frameworks related to value chain development based on biodiversity products in Armenia, **(b)** existing informal practices regulating biodiversity resource use (*i.e.*, wild collections) for commercial purposes, **(c)** financial/ transaction costs (money, time, etc.) along with the chain of submitting various forms and/or applications for different type of permits, license fees, etc., **(d)** relevant regulations for export/import of final products based on biodiversity resources, and **(e)** existing constraints and gaps in the respective political and legal frameworks<sup>3</sup>. One of the conclusions of this analysis was the absence of a single official body of the Republic of Armenia in charge of issuing wild collection certificates, due to the absence of relevant legal acts on this matter<sup>3</sup>. In other words, there was not any legal basis to certify wild collection in Armenia. Based on the legal law-making works and after the clarification of the regulating mechanisms, the 2010 study recommended the complex issue of the institutions to be discussed and clarified. Since the major aspect of this analysis focused on the process of acquisition, one of the offered solutions was to form a working group consisting of professionals, lawyers and other stakeholders (who actually implement or are going to implement the respective activities), in order to discuss and develop appropriate amendments to the existing laws in form of respective legal acts drafts, by which the processes of acquisition, standardization, export and import would be regulated. Based on the same principles, it was also recommended that a working group be formed for the implementation of legal mechanisms for the protection of certain species and areas. Furthermore, the study suggested that this issue of the institutions could be solved by the clarification of the functions of the existing

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<sup>2</sup> 6<sup>th</sup> National Report to the Convention on Biological Diversity of the Republic of Armenia, 2019.

<sup>3</sup> Analysis of legal and institutional frameworks for value chains based on biodiversity products and respective business practices, 2010.

institutions or reserving new functions to them or, alternatively, through establishing new structures/institutions<sup>3</sup>. These observations will, no doubt, bear great significance in drafting an action agenda upon completion of the present project.

Armenia, as part of the Southern Caucasus region, is considered as one of the centers of origins for cultivated plants, in particular, cereals and fruit crops. Ancestral varieties of cultivated crops and wild edible plants not only constitute important plant genetic resources for food and agriculture but also contribute to the economic growth, food security, and food sovereignty<sup>4</sup>. The trade and local harvest in the region involves a wide range of species including endemic plant species. A study by the NGO Fauna & Flora International to assess *legal and illegal wildlife trade and its potential impact on biodiversity* revealed that the trade in wildlife took place outside government's official regulation and management, representing a significant economic, environmental and security threat<sup>5</sup>. Along with literature and legislation review, the study included the monitoring of street markets, interviews and field surveys. The surveys on wild plant collection were conducted in mountainous regions of southern Armenia, including Ararat, and Vayots dzor regions/marzes<sup>5</sup>. In the areas surveyed, more than 100 species of plants have been identified as regularly collected by community people, including medicinal, ornamental and edible plants (*e.g.*, rosemary, valerian, ginseng, and liquorice) most of which are collected with roots and readied for the market. An inquiry with the now Ministry of Environment, revealed no official records of these transactions: at the time of the publication of the report there was no official monitoring data on the trade or use of medicinal and edible plants in Armenia<sup>5</sup>.

Armenia's climatic conditions and the intact environment of remote regions in Armenia, particularly that of Tavush, Lori and Syunik regions/marzes, positively affect the quality of plant material harvested from forests and make them products with high demand both in the domestic and international markets<sup>6</sup>. Reliance on nature, transferring ecological knowledge as a means of preserving traditional way of life, frequently referred to as "green mentality", has deep roots among many ethnicities in Armenia and in the greater Caucasus region<sup>7</sup>, thus the practice of collecting and using wild products in Armenia is not new.

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<sup>4</sup> National Report on the State of Plant Genetic Resources in Armenia – FAO Country Report, 2008.

<sup>5</sup> A. Mkrtchyan *et al.* An Assessment of Wildlife Trade in Armenia with Recommendations for Interventions - Final Report 2015-2016.

<sup>6</sup> Wild Harvest Value Chain Analysis - Armenia (World Bank Group Report, 2016)

<sup>7</sup> N. Stepanyan-Gandilyan. Traditions of the Green Mentality in Yezidi (Kurdish) Culture, 2015.

It is also important to acknowledge and emphasize the predominant role Armenian women play in maintaining these traditions, including the reliance on wild harvests for economic reasons. Rural households are traditionally involved in collection of wild products. Main players for the value chain for both herbs and berries include collectors (predominantly women), middlemen, processing plants, and distribution centers. A value chain analysis of the wild harvest sector revealed an above-average presentation of women in all segments of the value chain, from collecting and processing till the final stage of realization, with the exception of transportation<sup>6</sup>. Generally the collector-processor relationship is regulated on the basis of oral agreements. The identification of existing cooperation between different stakeholders and the gender issues at different stages of the value chains have been specific focal points of several studies in the past<sup>3, 8, 9</sup>. The Armenian government has identified the wild harvest value chain as an important sector with the objectives of poverty reduction and socially and environmentally sustainable development, which in turn would foster women's economic empowerment and gender equality<sup>9</sup>. Some of the important general findings of another study from 2010 on *processors and traders involved in the value chain of selected biodiversity products in Armenia* identified **(a)** the market demand and sales opportunities as a major problem for collectors, wholesale procurers (middlemen), and processors; **(b)** the urgent need for better market knowledge and assurances; and more importantly **(c)** paying special attention to sustainability issues<sup>10</sup>. The study highlights the need of basic training for collectors of specific herbs on collection processes as current collection practices often harm plants and an intensification of their use following market demand would negatively affect the environment and the government's commitment to protect biodiversity<sup>10</sup>.

There are three major uses of wild plants in Armenia: medicinal, culinary and commercial. Collections are particularly wide-spread in the Ararat and Vayots Dzor regions/marzes. The evaluations of the field surveys conducted by Flora & Fauna International showed that, in these regions, over 100 species are regularly collected of which 45 are medicinal, 45 edible, and 19 decorative plant species. The local markets are fairly small; plants are mostly harvested above ground and in spring time; and as such not considered a threat to the biodiversity as long as they are done for personal use or local trade<sup>5</sup>. In contrast, unsustainable harvesting of particular crops such as liquorice (*Glycyrrhiza glabra*) in big quantities as well as cases of harvesting wild plants with roots pose certain risks. Some unofficial records about collecting and exporting wild bulbs from the mountains suggested they were destined for export

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<sup>8</sup> Wild Harvest Value Chain Assessment Report Armenia. ICARE, 2018.

<sup>9</sup> G. Mkrtchyan, Armenia Gender Project - Women Business Association led in Public-Private-Dialogue, 2017.

<sup>10</sup> Analysis of processors and traders involved in value chain of selected biodiversity products in Armenia, 2010.

for personal use rather than for industrial needs as no official records existed<sup>5</sup>. This issue of sustainable use and management of wild plant collection was addressed through the following recommendations in the wild harvest value chain assessment report prepared by ICARE in 2018: **(a)** wide-scale awareness raising campaigns conducted in regions neighboring to forested areas, **(b)** increased involvement of local NGOs and regional authorities, **(c)** emphasizing the benefits of proper treatment of biodiversity resources, and **(d)** the collection of a broader palette of biodiversity products in order to secure the sustainability of the collections<sup>10</sup>. Improving collection area traceability as well as the eligibility of collection areas for organic certification are equally important in terms of sustainability and would undoubtedly improve the export potential of Armenian biodiversity products<sup>11</sup>.

It is important to note that while regions in Armenia are very rich in varieties of herbs and berries, the potential is not fully disclosed. While historically about 2,000 species (approximately 60% of the total flora of Armenia) were used for different purposes, as previously noted less than 100 species are currently commercialized in one form or the other<sup>10</sup>. Moreover, respondents to a survey during the analysis of processors and traders involved in the value chain identified seven, namely *blackberry*, *chervil*, *rosehip*, *thyme*, *walnut*, *cornelian cherry*, and *wild/apple and pear* to lead the list of products, although some 30 biodiversity products were also declared to be used (*i.e.*, collected, traded, processed): 15 species of berries, 3 types of mushrooms, 4 types of essential oil plants, 8-10 medical plants<sup>5</sup>.

Reasons for not taking advantage of the wide range of biodiversity products include a lack of **(a)** stocktaking of available natural resources and collected volumes, **(b)** awareness on available regional wild plants among collectors, **(c)** technical support from producer's site to organize logistics, **(d)** information on market demand for the wild plants, and **(e)** missing state support<sup>8</sup>. A National Action Plan of the Republic of Armenia on Biodiversity Conservation, Protection, Reproduction and Use for 2016 – 2020 is in existence, listing the activities, aims, implementers, timeframes, sources of financing, and expected outcomes. Government bodies such as the Ministry of Environment, Ministry of Agriculture (now within the Ministry of Economy), Ministry of Territorial Administration and Infrastructure, Ministry of Education, Science, Culture, and Sport; and academic institutions including the National Academy of Sciences, and the Armenian National Agrarian University (both by agreement) are the principal implementers<sup>1</sup>. According to the environmental regulations for wild harvest in

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<sup>11</sup> Wild Plant Sampling Report (GTZ Project, 2011)

Armenia, the collection of wild herbs, berries, and fruits fall under the category of secondary forest use and compensation tariffs for damage caused to flora and fauna as a consequence of violation of environmental protection laws do exist (Hayantar /Armforest SNCO, Forest Sector Regulation Acts)<sup>8</sup>. Nevertheless, despite the recommendations of the two earlier studies from 2010, the implementation of regulations *vis à vis* legal entities and natural persons, violations of environmental protection laws, unsustainable wild harvesting practices, and problems with monitoring still pose as major obstacles on the government's efforts to managing the regulated wild plant collection in Armenia<sup>8</sup>.

Long-term projects such as the World Bank Group's Armenia Gender Project aim to support women engaged in the wild harvest sector through increased productivity, reduction of poverty, and promotion of economic growth<sup>12</sup>. The training of women collectors on environmentally-friendly harvesting practices, as part of the value chain assessment ought to be encouraged. Implementing good harvesting practices recommended by the International Federation of Organic Agriculture Movements (IFOAM) aiming to standardize especially plant material to be used as pharmaceuticals would no doubt appreciate the value of the products in this sector<sup>13</sup>. Better collaboration among collectors and across the value chain would improve the diversification of plant material collected from the wild, in order to secure the sustainability of the collections. One of the main issues of this sector is the lack of awareness, at the collector level, of the market demand in terms of quality and quantity. Wild plant collectors frequently experience difficulties with marketing of collected produce or fail to collect to the maximum of their capacity. A holistic approach to solve the issue of balancing supply and demand is required and can be achieved through training of especially the women collectors which in some regions dominate this segment of the value chain (*e.g.*, over 90% in the Ararat region/marz and over 50% in the Vayots dzor region/marz).

The need to organize women collectors, hone leadership skills among women entrepreneurs as well as improve their market access by fostering better links with buyers and producers<sup>12</sup> with the support from both local and international NGOs would play a large role in activating wild harvest sector in regions. Results of workshops and interviews as part of the 2018 analysis reaffirmed the low regulation of the wild harvest sector, as previously discussed<sup>8</sup>. Although environmental charges are clearly defined by regulation, the payment procedure and the regulating body/ authority is not well-defined, pushing defined charges into irrelevance. Supporting wild sector regulations; improving the

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<sup>12</sup> G. Mkrtchyan. Armenia Gender Project - Factsheet (2017)

<sup>13</sup> K. Başer. Sustainable wild harvesting of medicinal and aromatic plants an educational approach - document, 2000.

mechanisms for the enforcement of fee payments; promoting social entrepreneurship especially among women collectors; organizing experience-sharing workshops to better engage a wide range of stakeholders; supporting the development of alternative product value chains (*e.g.*, essential oils from herb stems or berry fruit and seed that are normally wasted); enabling access to information on the variety and diversity of wild plants & berries that grow and are in demand in markets; and promoting research on biodiversity in Armenia such as stocktaking of wild plants and nature's capacity in terms of quality and quantity in Armenia's regions implemented especially by producers/ processors or NGOs were among the recommendations of the extensive 2018 study<sup>8</sup>. The collection of biodiversity products, frequently conducted in a spontaneous way -and often without licensing/permits and payments of nature use/environmental fees; the absence of proper control from the authorized state bodies (what is collected and how); the absence of license/permit for wild collection becoming a problem during exports their products -when submission of wild collection certificate is required but also questions regarding the payment of taxes; the amount of taxes applied, and what state body/ organization is eligible to collect taxes remain to this date as major obstacles<sup>3, 8</sup>.

The exploitation of natural resources through the actions of multiple stakeholders has significant negative impacts on the biodiversity of not only Armenia but across Southern Caucasus, which despite existing national biodiversity strategies and action plans constitutes a significant challenge for government conservation efforts that can only be overcome through coordinated involvement across different entities with a stake in this sector including businesses, a range of government authorities as well as academic institutions<sup>1, 14</sup>.

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<sup>14</sup> [Integrated Biodiversity Management South Caucasus](#) (IBiS) Programme of the German Society for International Cooperation (GIZ), 2015.

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