



**SAMARKAND STATE UNIVERSITY NAMED AFTER SHAROF RASHIDOV  
(SAMDU)**

**SUSTAINABLE DEVELOPMENT GOAL 15  
(SDG 15)**



SDG 15 aims to prevent and reverse land degradation, reduce biodiversity loss, combat desertification, and promote terrestrial ecosystems' conservation, restoration, and sustainable use. Earth remains the only known planet that sustains all forms of life, and the health of its ecosystems is fundamental to human survival. Unfortunately, human actions—such as land degradation, deforestation, and destroying natural habitats—have significantly harmed the planet's ecology. Protecting biodiversity and encouraging sustainable use of ecosystems are more than causes; they are essential to our continued existence on Earth.

At Samarkand State University, we actively promote biodiversity on campus and advocate for global efforts in land restoration, afforestation, and sustainable development. Named after Sharof Rashidov, the university and its affiliated departments are dedicated to enhancing biodiversity on land. To further these efforts, the university regularly hosts events and exhibitions that showcase its initiatives to restore and protect biodiversity.

Biodiversity issues have been the subject of extensive research by numerous experts and scientists over the years. Additionally, the Faculty of Biology and the Faculty of Geography and Ecology, leads efforts in research, education, and training on a wide array of topics related to environmental, land, and water challenges.

## Metrics

### 15.2.1 - Does your university as a body support and/or organise events aimed to promote conservation and sustainable utilization of the land, including forests and wild land?

We are committed to providing opportunities for students and the community to engage with our campus ecosystems through outreach programs that support social impact and offer hands-on experiences within our academic courses.

Samarkand State University offers multiple biodiversity zones where students and faculty can explore and learn about biodiversity including the Botanical garden and Urgut camp. For instance, the Botanical Garden, located just outside Samarkand city, spans approximately 20 hectares and hosts a wide variety of plant and animal species. These plants serve as valuable resources for study



These photographs display the natural ecosystem, growing without intervention.

and research.

We are determined to flourish the vegetation and animals without any intervention. It indicates our beliefs and actions.

Our biodiversity sites are open to all students, common people, and interested stakeholders to learn from the ecosystem to maintain sustainability and provide indigenous solutions to complex problems.

To embed sustainability deeply within our system, we host numerous events and exhibitions to promote sustainable solutions both regionally and globally. As part of this initiative, the university organized several meetings focused on sustainability.

During this event, many students and researchers have come forward to solve many environmental, ecosystem, and biodiversity issues sustainably.



University and its stakeholders carry out several activities including workshops, conferences, debates, exhibitions to provide an efficient platform for creating awareness and producing indigenous and innovative solutions.

### 15.2.2 - Does your university as a body have policies to ensure that food on campus is sustainably farmed?

The university promotes sustainability and preserves its culture of serving fresh and ecologically sustainable food in university-owned canteens. In order to ensure sustainability, our ethical



sourcing food policy guides us through a step-by-step procedure to establish a system that calibrates our needs and demand should be fulfilled by the sustainably harvested food.

The above photographs showcase sustainable food sources and a promotional event at the university, collaboratively coordinated with local stakeholders. Additionally, the university's sustainable procurement and purchasing policy is publicly accessible, guiding all purchases made by the administration in alignment with these sustainability standards.

<https://www.samdu.uz/upload/content-files/Sustainable%20Purchase%20and%20Procurement%20Policy.pdf>

### 15.2.3 - Does your university as a body work directly to maintain and extend existing ecosystems and their biodiversity, of both plants and animals, especially ecosystems under threat?

Samarkand State University's horticulture department, Department of Zoology and Botany are committed to work on increasing biodiversity. All the buildings are designed to protect biodiversity. In order to maintain the sustainability, the administrative, academic, and hostel facilities are decorated with planted vegetation including parks and recreational areas for students, staff, and visitors. Many researchers are carrying out state of art research and developing a suitable curriculum for addressing the vulnerable species of plants and animals which were put in the endangered list. For this purpose, Samarkand State University has established many museums for teaching and research.



Restored Ecosystem (Planted vegetation)

The biological museum was established in 1934 to display the variety in biological diversity. Since its inception, the museum extended its services to provide a complete view of ancient biological animals and their life stories. For example, Turan Tiger lived in Central Asia and the tiger is part of the IUCN Red Book since 1954 and the taxidermy is preserved at the museum.

Second example, the Indian elephant is also preserved at the museum to showcase its biodiversity. Prof. A.K. Sagitov and L.V. Ionislar prepared the taxidermy of elephant in 1975.

Further, many other animals like Bukhara deer, Gazelle, Black Gazelle, black and brown bears, snows bears, and wild boars have been preserved at the museum to teach students and researchers.



This museum has its own variety of samples. It shows wonderful depictions of animals, birds and desert animals. These animals and their samples are preserved, maintained and displayed for training and teaching. These natural samples of animals are having scientific importance as well as historical perspectives.



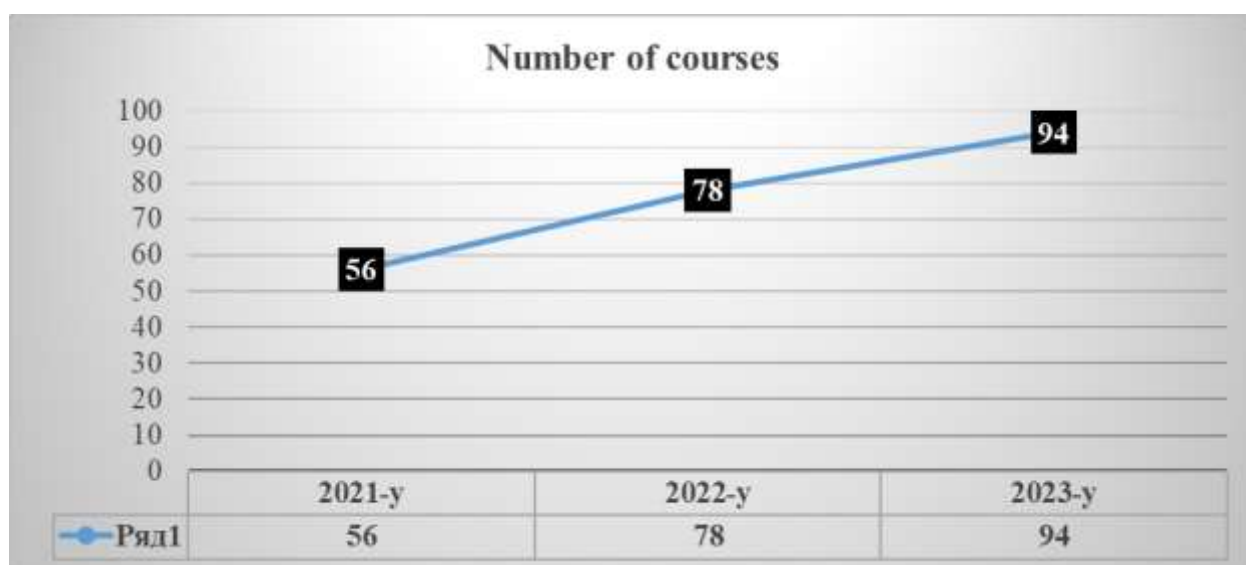
Further, our researchers also work on different biodiversity issues. For example, many workers are working on Zarafshan biodiversity, rangeland degradation and solutions. Many of the researchers



Many of the researchers are working on desertification due to its aggravating nature in the country.

### 15.2.4 - Does your university as a body offer educational programmes on ecosystems (looking at wild flora and fauna) for local or national communities?

Samarkand State University offers more than 94 educational programs for bachelor, master, and Ph.D. students about wildlife including flora and fauna. These courses are dominantly run by the faculty of geography and ecology, faculty of biology, and faculty of chemistry. The Institute of Agro-biotechnology also offers many courses attributed to flora and fauna. It shows the university's commitment to sustainability. We also encourage the national and international community by conducting a state of the art research on biodiversity and sustainability.



We also provide meaningful information about the flora and fauna of the Republic of Uzbekistan and are available at:

<a href="http://www.ziyonet.uz">www.ziyonet.uz</a>	<a href="http://www.naukaran.ru">www.naukaran.ru</a>
<a href="http://www.maik.ru">www.maik.ru</a>	<a href="http://www.rusplant.ru">www.rusplant.ru</a>
<a href="http://www.floranimal.ru">www.floranimal.ru</a>	<a href="http://www.nature.uz">www.nature.uz</a>
<a href="http://www.pedagog.uz">www.pedagog.uz</a>	<a href="http://www.mail.ru">www.mail.ru</a>
<a href="http://www.biologyjunction.com">http://www.biologyjunction.com</a>	<a href="http://images.botany.org/">http://images.botany.org/</a>



### 15.2.5 - Does your university as a body offer educational programme/outreach for local or national communities on sustainable management of land for agriculture and tourism?

Samarkand State University, as a leading public institution, is committed to advancing literacy across all areas of the education sector. To support this mission, we have developed various programs aimed at achieving 100 percent literacy throughout the region.

Several programs offer valuable opportunities for individuals unable to participate in regular education due to challenges in attending or continuing their basic studies. To support these individuals, the university has established an ongoing outreach education initiative, serving both local and national communities.



Photograph of educational activity of outreach program

These courses are designed to deliver advanced education across various fields, including agriculture, biological sciences, environmental sciences, ecology, ecotourism, and geography. Below are a few examples of classrooms dedicated to these disciplines.



An event of outreach students, prize distribution ceremony

Science Olympiad organized by the Samarkand State University at different schools with certain objectives. The primary objective was to preach the sustainability knowledge among students and secondary objective was to estimate the current knowledge and understanding about the discipline. More than 1200 students participated in the Olympiad from different regions of Samarkand.



### **15.3.1 - Does your university as a body have a policy to ensure the conservation, restoration and sustainable use of terrestrial ecosystems associated with the university, in particular forests, mountains and drylands?**

This Policy provides the exclusive mechanism for Samarkand State University - conservation, restoration and sustainable use of terrestrial ecosystems. A flourishing life on land is the foundation for our life on this planet. We are all part of the planet's ecosystem and we have caused severe damage to it through deforestation, loss of natural habitats and land degradation. Promoting a sustainable use of our ecosystems and preserving biodiversity is not a cause. It is the key to our own survival.

For this purpose, Samarkand State University acts proactively to penetrate the sustainable practices of flora and fauna. In order to implement, all campuses of the university act like a living library. For example, more than 10 types of drought-tolerant plants have been planted. The university publishes its sustainability report every year to showcase the actions and their outcomes. The Botanical Garden of Samarkand State University was given under the custody of faculty of biology. They treat this garden as a living laboratory to learn from nature and they manage it perfectly in a sustainable way.





- The First National Strategy and Action Plan for Biodiversity Conservation was approved by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 139 of April 1, 1998.
- Biodiversity conservation is supported by the Global Environment Facility (hereinafter referred to as GEJ), the World Bank, the United Nations Development Program (hereinafter referred to as UNDP), the World Wildlife Fund and other international organizations. - strengthened. To be able to develop this aspect by SamSU.
- We need to focus on land degradation, and desertification processes and to avoid other negative consequences of unsustainable use of natural resources.
- Currently, the impact of negative factors on natural ecosystems and the reproduction of wildlife and plants continues. Continuing to effectively protect the components of biodiversity requires a systematic approach, and the development of comprehensive measures to protect both the animals themselves and their habitat and as well as flora.

The Conservation, restoration, and sustainable use policy is available:

[https://www.samdu.uz/upload/content-files/Conservation%2C\\_Restoration\\_and\\_sustaiability\\_Policy\\_Revised1124.pdf](https://www.samdu.uz/upload/content-files/Conservation%2C_Restoration_and_sustaiability_Policy_Revised1124.pdf)

### **15.3.2 - Does your university as a body have a policy to identify, monitor and protect any IUCN Red Listed species and national conservation list species with habitats in areas affected by the operation of your university?**

Samarkand State University's experts work on rare species declared by the International Union of Conservation of Nature. They collect information through rigorous fieldwork, analyze habitats, and conduct research on their adaptive characteristics to the change in the climate and local phenomena. Further, these researches are published in peer-reviewed journals for common people and interested readers.

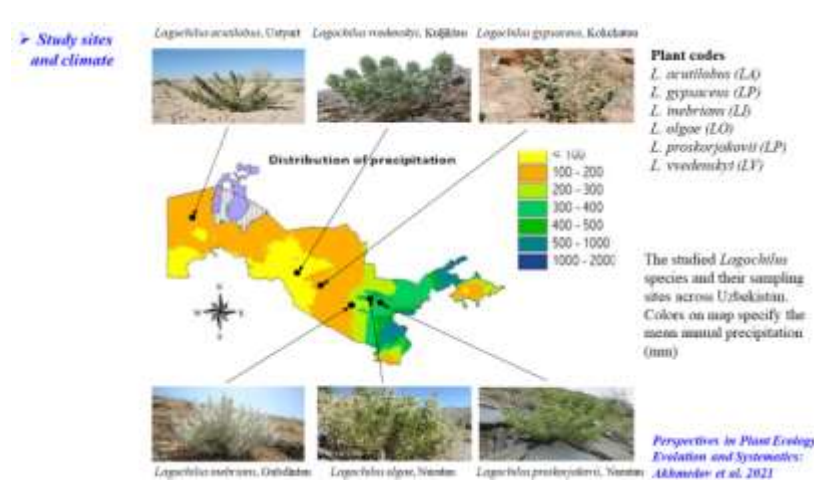
Since the country's membership of IUCN, our efforts have multiplied to focus on biodiversity conservation. The National Biodiversity Strategy and Action Plan was implemented to achieve the targets across the region. According to the list of IUCN Redbook, a total of 314 plants were considered rare and endangered while 30 mammals and 52 bird species were considered rare and endangered.

For example, one research was conducted on “*Lagochilus inebrians* Bunge”. It was observed that due to the irregular use of plant resources by humans, the diversity of green plants is disappearing. Due to climate change and global warming, vegetation cover is in crisis. Many unique types of plants are disappearing in the flora of Central Asia under the pressure of anthropogenic and climate change factors. In particular, a number of plants belonging to the mint family are among them. The mint family is one of the largest plant families on earth. Its representatives are widespread mainly in countries with a warm and temperate climate. This family includes about 200 genera and 3000 species. 360 species belonging to 53 genera are known to grow in Central Asia, and 238 species belonging to 39 genera are known to grow in Uzbekistan. The mint family is one of the widespread families in the flora of Uzbekistan, and it is distinguished from other families by its wealth of useful species. Representatives of such groups as mint, salvia, ziziphora, *L. inebrians*, origanums have been used in medicine, food, confectionery and perfume industry for a long time. *L. inebrians*, is a medicinal plant that belongs to the mint family and has been used in folk medicine since ancient times. 3 species growing in Samarkand region are included in the Red Book of Uzbekistan. One of the significant works conducted at Samarkand State University to study the bioecological properties of this unique plant and to determine new methods of its

reproduction is "View species of *L. inebrians* in vitro conditions" breeding and establishment of a collection in the Botanic Garden of SamSU" is a research on the subject. Under the scientific guidance of Akbar Ahmedov, associate professor of the Department of Botany, the researcher conducts scientific research on the methods of reproduction and bioecological properties of the *L. inebrians*.



There are 46 types of the genus *Lagochilus* on Earth, 13 in Uzbekistan, - says researcher Gulbonu Torakulova. - Today, most populations of this species are in danger of extinction. Therefore, it is necessary to carry out monitoring work in order to preserve them in nature. Currently, it is important to breed *Lagochilus* species in vitro and establish a collection. The



analyzes of the use and use of *L. inebrians* in the national economy showed that among the existing species of *L. inebrians*, in addition to honey and essential oil-producing species, medicinal and decorative, that is, ornamental

species are also widespread in our country. it became known. *L. inebrians* is one of the valuable medicinal plants, which are effective in calming the nervous system, treating skin diseases, controlling blood pressure, and stopping internal and external bleeding.



The identification, monitoring and protection policy is available:

### 15.3.3 - Does your university as a body include local biodiversity into any planning and development process (e.g. construction of new buildings)?

Samarkand State University's campuses are a real manifestation of biodiversity. Vice-Rector of construction and renovations and its office is responsible for planning new buildings. Before constructing a new building or any infrastructure project, we do a complete biodiversity analysis and plan for restoring it.

Samarkand State University prioritizes environmental sustainability and conservation often integrate local biodiversity considerations into planning and development processes. This can include assessing the impact of new construction projects on surrounding ecosystems, preserving green spaces, and creating biodiversity zones that serve as both educational resources and conservation areas. For example, some universities conduct environmental impact assessments (EIAs) before construction to identify potential impacts on native species and habitats. This assessment helps them incorporate biodiversity-friendly practices, such as planting native species, creating green roofs, and designing spaces that promote natural water flow and reduce habitat disruption.

By embedding biodiversity goals into campus planning, the university aims to balance its infrastructure needs with environmental stewardship. They may collaborate with ecological experts and local communities to ensure that new buildings and landscaping efforts support local flora and fauna. This approach is part of a broader commitment to sustainable development, aligning with Sustainable Development Goal 15, which emphasizes the sustainable use of terrestrial ecosystems and minimizing biodiversity loss.







The office of construction and renovation is the responsible department to plan a biodiversity rich parks in front of all newly constructed and renovated buildings. The parks and green spaces reflect our commitment to the sustainable growth.

### 15.3.5 - Does your university as a body collaborate with the local community, e.g. through partnerships, in efforts to maintain shared land ecosystems?

Samarkand State University is committed to sustainability through cooperation and collaboration with local communities to protect and maintain a shared ecosystem. These partnerships are based on certain fundamentals including conservation and restoration projects, community engagement and education, research collaborations and sustainable land use practices.

Different faculties and the Institute of Agro-biotechnology and Food Security proactively work with local communities to provide them with technological input for better farming and harvesting. For example, our researchers collaborate with local stakeholders to estimate the local biodiversity and maintain a native habitat across the region. For this purpose, the university conducts different outreach activities in the form of workshops, public lectures, and volunteer programs to provide systematic support and skill training to local farmers and stakeholders.



Through these collaborative efforts, universities help foster a culture of sustainability and environmental stewardship that benefits both the institution and the surrounding community.

For displaying our efforts, few examples of community engagement have been enlisted here. Field experiments on soybean planting and cultivation between cotton rows were conducted at the scientific-experimental station in Akdarya district of Samarkand region. In the experiment, cotton and soybean row spacing was 90x20 cm double row, 8 variants and 4 repetitions. The "Zarafshon" variety of cotton included in the State Register, Nafis and Seleкта-302 soybean varieties were taken as experimental objects in the ongoing research.

The purpose of the study: to determine the effectiveness of optimal planting standards and inoculant application that will ensure higher yields of soybeans when intercropped with cotton and soybeans.

Sowing of cotton and soybean seeds was done on April 7, 2021. After sowing, the seed germinated in 9 days and soybean seeds germinated in 11 days. Field germination of soybean seeds with inoculant application was on average 88.2% and significantly increased compared to the control variant without inoculant application.

Crop care was carried out according to the procedure established in cotton agrotechnology.

In the experiment, when the Nafis variety of soybean was planted, cotton and soybean grew well together because it did not branch. When the variety Seleкта-302 was planted with cotton, it was observed that the development of cotton was slowed down due to branching of the soybean.

In rows where cotton was planted separately, the number of cotton plants per hectare was 100,000, and when it was planted with soybeans, it was 72,000, and when soybeans were planted separately, the number of plants per hectare was 500,000, and when it was planted with cotton, it was 350-400,000.

Soybean seeds, when planted separately, form nodules on the roots, accumulate 70 kg/ha in pure soil, and up to 150 kg/ha in our rows with inoculants, because there is no need to use nitrogen fertilizers, and next year, up to 7-10 centners per hectare will be saved. allows to get a crop.

Soybean crop was harvested today, it was observed that the yield was 22 t/ha when soybean seeds were sown separately and 16 t/ha when planted together with cotton.

Cotton harvesting continues and yield determination is being carried out.

In conclusion, when soybeans are mixed with cotton and due to the use of inoculants, the increase in the number of symbiotic bacteria in the roots of soybeans increases soil fertility and has a positive effect on the next year's crop yield.

### **Recommendations**

1. It is advisable to choose soybean varieties that do not branch and do not have a serious negative effect on the development of cotton when planted together with cotton.
2. Compared to the height of cotton, the height of the soybean plant is relatively low, and the study of early varieties by adding them to the experimental options will help to increase the relevance of the work and the efficiency of the results.
3. Conclusions based on the results of the first year's experiments will be summarized, a plan for next year's experiments will be drawn up, and the number of varieties in the experiment will be increased.



**15.4.1 - Does your university as a body have water quality standards and guidelines for water discharges (to uphold water quality in order to protect ecosystems, wildlife, and human health and welfare, etc.)?**

Samarkand State University focuses on sustainability and environmental impact management and often implements water quality standards and guidelines for water discharges to protect ecosystems, wildlife, and public health. Important to note that Uzbekistan has been actively working to improve the quality of water after joining the World Health Organization (WHO). However, the supply of water is dominated by the Amu Darya and Syr Darya. To restore the quality, the country has implemented a framework, necessary infrastructure, and water-efficient irrigation technologies. Taking inspiration and legal power from the government legislation and plans, Samarkand State University also implemented a policy framework to control and regulate water pollution by using water-efficient appliances, allocation of water for most priority areas, modern irrigation infrastructure, and upgraded drainage network.

The produced waste is discharged to the waste disposal network in a proper way and as per rules and regulations of Uzbekistan. These laws and regulations provided by the government and reviewed under the guidelines of world health organization (WHO).



#### 15.4.2 - Does your university as a body have a policy on reducing plastic waste on campus?

Samarkand State University's policy on reducing plastic waste describes our commitment to minimizing plastic at university and its owned buildings. It dictates the definition of plastic of waste, types of plastic waste, disposal mechanism, collection, and disposal in an appropriate way. As per policy, the university does not allow single-use plastic.



We promote at our campus that plastic is not allowed. For this purpose, we categorized plastic waste separately and collect in different dustbins.

The reducing plastic policy is available on our website:

<https://www.samdu.uz/upload/content-files/Reducing%20Plastic%20Waste%20Policy.pdf>

**15.4.3 - Does your university as a body have a policy, process or practice on waste disposal - covering hazardous materials?**

Samarkand State University is determined to estimate the toxic waste for example laptops, computers, batteries, cells, and others. On the other hand, laboratories produce consistently toxic waste after each experiment. Therefore, the university acts wisely to reduce the utilization and reuse of waste products by fixing them or for other purposes.

Our policy describes the procedures and protocols for collecting, keeping, and disposing of hazardous waste.

(End)