



Sustainable Development Goals

Individual Report on SDG 14 - LIFE BELOW WATER



Aktau 2023

YU actions to sustainably use the oceans, seas and marine resources

SUSTAINABLE DEVELOPMENT GOALS

INDIVIDUAL REPORT

14.2 Supporting aquatic ecosystems through education

14.2.1 - Does your university as a body offer educational programmes on fresh-water ecosystems (water irrigation practices, water management/conservation) for local or national communities?

yes. The following courses are offered at Yessenov University, designed to preserve the environment in the curricula of all levels.

1. Analysis of oil, petroleum products and water
2. Wastewater treatment and Water Resources Management
3. Hydrochemistry
4. Groundwater search and exploration
5. Mangyshlak underground waters
6. Limiting the flow of water in the well
7. Metrology, standardization and certification in water transport
8. Geography of inland waterways

<https://yu.edu.kz/en/page/2/?s=%D0%BF%D3%99%D0%BD%D0%B4%D0%B5%D1%80>

14.2.2 - Does your university as a body offer educational programme / outreach for local or national communities on sustainable management of fisheries, aquaculture and tourism?

Yes. Yessenov University offers the following programs related to the specifics of the region in courses for the 2023-2024 academic years:

Methodological foundations of field research of the flora of the Caspian region;

Methodological foundations of field research of the fauna of the Caspian region;

Literature of the region;

Monuments of ancient Turkic writing;

Sacral texts of Mangystau;
Mangystau toponymy ;
Hospitality industry;
Basics of Kazakh hospitality;
Modern political systems and political processes of the Caspian countries ;
Promising types of tourism in Mangystau region;
Regional political analysis of the countries of the Caspian region (in English);
Local history;
Virtual museums: preservation and representation of historical and cultural heritage;
Sacral Mangystau;
Archeology of Mangystau;
Environmental problems of Mangystau region and safety of the Caspian Sea;
Wastewater treatment and Water Resources Management.
<https://yu.edu.kz/en/page/2/?s=%D0%BF%D3%99%D0%BD%D0%B4%D0%B5%D1%80>

<https://docs.google.com/document/d/1xKkb5Qy0zwcUByzucem5pWztUGsrJkoJ/edit>



14.2.3 - Does your university as a body offer educational outreach activities for local or national communities to raise awareness about overfishing, illegal, unreported and unregulated fishing and destructive fishing practices?

In order to protect the flora and fauna of the Caspian Sea of Mangystau region, a subject has been introduced into all modern training programs. In addition,

educational work will be carried out with meetings and meetings of local communities of the Mangistau region for the preservation of values.

14.3 Supporting aquatic ecosystems through action

14.3.1 - Does your university as a body support and/or organise events aimed to promote conservation and sustainable utilisation of the oceans, seas, lakes, rivers and marine resources?

1. International scientific Maritime Conference "the impact of the shallowing of the Caspian Sea on cargo flows of the Caspian states" was held at Yessenov University

<https://yu.edu.kz/kaspij-many-memleketterinin-zh%d2%afk-a%d2%93yndaryna-kaspij-tenizinin-tayazdanuynyn-%d3%99seri/>

2. In honor of the 45th anniversary of Yessenov University, the XXIII General Assembly of the Association of higher educational institutions and research centers of the Caspian countries was held. According to the rules of the Association of the Caspian countries, the rector of the University where the assembly was held holds the honorary position of the president of the association. Following this tradition, Yuri Pimenov, executive director of the Association of universities and research centers of the Caspian states, announced the president of Yessenov University Akhmetov Berik as president of the Association of higher educational institutions and research centers of the Caspian countries.

This is the third time the Kazakh University has held the presidency.

<https://yu.edu.kz/kaspij-many-elderinin-zho%d2%93ary-oqu-oryndary-men-%d2%93ylymi-zertteu-ortalyqtary-qauymdasty%d2%93ynyn-xxiii-bas-assambleyasy/>

3. On April 23, Yessenov University hosted the annual international scientific and practical online conference "Caspian region: new threats and new opportunities' ', dedicated to the 30th anniversary of independence of the Republic of Kazakhstan.

<https://yu.edu.kz/kaspij-ajma%d2%93y-zhana-qaterler-men-zhana-m%d2%afmkindikter-2/>

4. On December 25, the International Online Conference "Caspian in the XXI Century: Regional and global problems, cooperation and security" was held, dedicated to the 70th anniversary of Professor, Doctor of technical sciences Kenzhetaev Gusman Zhardemovich.

<https://yu.edu.kz/xxi-%d2%93asyrda%d2%93y-kaspij-ajmaqtuq-zh%d3%99ne-zha%d2%bbandyq-m%d3%99seleler-yntyymaqtastyq-zh%d3%99ne-qauipsizdik/>

5. To study the features and main environmental problems of natural conditions and resources of the Caspian Sea.

Summary: A Brief History of the exploration of the Caspian Sea. Geographical position, natural and climatic features. The current state of the environment of the Caspian Sea. Ecological environment of the Caspian Sea oil and gas complex.

<https://yu.edu.kz/course/B21-009%20-%20Ekologiceskaya%20bezopasnost%20Kaspiiskogo%20morya/>

On May 15, Yessenov University, the Center for international and socio-political studies "Caspian Eurasia" and Astrakhan State Technical University held an international scientific and practical online conference "environmental aspects of socio-economic development of the Caspian countries and sustainable development of the region at the present stage".

Experts and conference participants analyzed the impact of the national economies of coastal countries on the Caspian ecosystem and identified the main factors that ensure the achievement of Sustainable Development of the Caspian from the point of view of world experience.

The conference also discussed environmental and economic aspects and issues of modernization of the economy of the five Caspian countries, a forecast assessment of the impact of the pandemic on the Caspian littoral countries and the interaction of universities and scientific and expert communities in the region.

The event was attended by scientists from universities in Kazakhstan and Russia, representatives of environmental associations, government agencies and large companies.

<https://yu.edu.kz/kaspij-ma%d2%a3y-elderin%d3%99i-%d3%99leumettik-ekonomikaly%d2%9b-damuyny%d2%a3-ekologyaly%d2%9b-aspektleri-zh%d3%99ne-%d2%9bazirqi-keze%d2%a3degi-ajma%d2%9bty%d2%a3-t%d2%b1ra%d2%9bty-damu/>



14.3.2 - Does your university as a body have a policy to ensure that food on campus that comes from aquatic ecosystems is sustainably harvested?

- No.

14.3.3 - Does your university as a body work directly (research and/or engagement with industries) to maintain and extend existing ecosystems and their biodiversity, of both plants and animals, especially ecosystems under threat?

The Republican scientific and practical conference" formation of ecological culture and consciousness "was organized by the Department of Ecology and chemical engineering of the Faculty of" engineering". Purpose of the conference:

Increasing the knowledge of teaching staff and young scientists in the field of ecology, as well as the formation of ecological culture and consciousness.

Within the framework of the Republican scientific and practical conference, a plenary session was held, which was attended by O. A. Tokzhanov, Chief Specialist of the Department "Natural Resources and environmental management" of Mangystau region.

<https://yu.edu.kz/yilyimi-t-zhiribelik-konferentsiya/>

The Republican scientific and practical conference" formation of ecological culture and consciousness "was organized by the Department of Ecology and chemical engineering of the Faculty of" engineering".

Purpose of the conference:

Increasing the knowledge of teaching staff and young scientists in the field of ecology, as well as the formation of ecological culture and consciousness.

<https://yu.edu.kz/ekologiyalyi-m-deniet-pen-sananyi-alyiptastyiru/>

Within the framework of the Ruhani zhangyru program , the Department of "Mechanical Engineering and transport" organized a trip to the Red City, one of the sacred places of Mangistau, where the curators of the group Bilashova G. S., Yusupov A. A. visited students of the specialties "Mechanical Engineering", "standardization and certification", "transport, transport engineering and technology", "technological machines and equipment". The students were struck by the beauty of nature. They expressed their gratitude for the opportunity to see the holy places.

<https://yu.edu.kz/yizyil-ala-a-sayahat/>

At the Faculty of engineering, a seminar was held with the participation of students, representatives of the Department of Ecology and chemical engineering (acting head of the Department of Natural Resources and environmental regulation" projects for environmental regulation "Sarmurzina A. Kh) and non-governmental organizations (Head of the public Association" Nurly Aktau

"Sagindikova N. T.). Based on the program "Ruhani zhangyru", the seminar considered the issues of formation of youth's views, consciousness on the formation of environmental education and culture, with a scientific assessment of the changes taking place in nature, disclosure and deep understanding of its causes.

Members of the student club "Zhas ekolog" at the Department of Ecology and chemical engineering and students of the Specialty "Chemical Technology of organic substances" and senior teachers G. T. Mustapaeva, a.m. Aytimova, A. N. Boranbayeva, U. K. Yensegenova, took part in the Environmental Action "autumn cleaning – 2018", organized by the NGO "Ecomangistau". The Subbotnik, held within the framework of the project "Green Leadership 2.0", was held in the Samal Tau Gorge, a picturesque area of Mangystau region.

The great cleaning day was very interesting, fun, with the active participation of students. The participants returned from nature with the feeling that it is our duty to protect and protect them, and not only to instill energy, inspiration and love for their feelings. After all, nature is our home, so we need not only to take care of it, but also to keep it clean with care, without abuse!

<https://yu.edu.kz/zhas-ekolog-studenttik-klubyi-senbilikte/>

14.3.4 - Does your university as a body work directly (research and/or engagement with industries) on technologies or practices that enable marine industry to minimize or prevent damage to aquatic ecosystems?

yes. Since 2017, training of students in the specialty 5b071500 "Marine Engineering and technologies" is carried out under the experimental educational program developed in accordance with the requirements of the International Convention on the training, graduation and watch escort of sailors of 1978 with amendments to specializations (PDNV-78:

- 5b071501-operation of the ship's power plants;
- 5B071502-navigation;
- 5b071503-operation of ship electrical equipment and automation equipment;
- 5b071504-operation of loading and unloading equipment of ports and transport terminals.

In August 2018, after the summit of the heads of the Caspian states, on the basis of the decision of the Council of Rectors, the Department of "sea and land transport" of the Faculty of Transport and construction was transformed into the

Maritime Academy of the Caspian State University of technology and engineering named after sh.Yessenov.

A memorandum of cooperation was signed between "ship equipment and service" LLP and the Caspian University of technology and engineering named after sh. Yessenov.

The largest European manufacturer of marine simulators held a meeting with Kongsberg on further cooperation. The Maritime Academy successfully uses the company's products in its training programs. We thank the Regional Sales Manager of Kongsberg — Miss Solvi Opthun for the attention to our educational institution!

<https://ma.yu.edu.kz/sobytiya/te%20a3iz-akademiyasy-%209br-da-te%20a3iz-bilimin-kommercziyalandyru-atty-d%20a9%20a3gelek-%20afstel-%20a9tkizdi/>

A meeting with employers was organized at the Maritime Academy. Representatives of employers took part in the round table "discussion of educational programs with employers within the framework of the integration of Education, Science and practice" of the Yu Maritime Academy on October 31, 2022: ABAT Total Engineering Services & Consulting LLP — N. D. Ermaganbetov, Port Kuryk LLP — B. K. Kamidollayev, ship equipment and service LLP-E. U. Zhumanov, Aktau trade Seaport NC JSC-H. E. Jamurtov, MIID RK Western Regional Branch of the "register of shipping" branch of the RSE "Kazakhstan su zhaldar" – A. E. Rakhidulin. Manager of educational programs of the educational and methodological Department of the University A. Sh. Akkenzheeva, members of the organizing committee, graduates and students of educational programs.

We discussed the curricula of the basic University impartially and made many adjustments to the academic disciplines. The participation of employers in improving the educational process helped to determine the main directions of training future water transport specialists.

6b07112-operation of ship's power plants according to the EP :

1.introduction of the discipline "instrumentation and automation" into the curriculum this discipline is necessary for carrying out organizational work related to ensuring the smooth operation of equipment.

2.consideration of the discipline" Technology of using fuel, water and oil on a ship " for compliance with the requirements in the formation of professional competencies of graduates.

According to the EP 6B07113 — navigation:

To consider the possibility of combining disciplines in order to avoid re-studying the content of disciplines in the formation of professional competencies of graduates.

6b07115-operation of transshipment equipment of ports and transport terminals according to the EP:

Consider the possibility of obtaining additional education in the specialties of a Docker-mechanic, crane operator (crane operator), rigger, mooring (coastal).

According to the master's degree program-7m07112-Marine Engineering and technology, 7M07113-management of Water Transport and provision of shipping it is necessary to introduce disciplines in accordance with the standards of the new generation on the formation of professional competencies of graduates. Creating the necessary conditions for the implementation of state educational standards of the new generation (material and technical, personnel, information and methodological, etc.).

We continue to work with employers on the formation of a cycle of specialized disciplines of the main vocational education programs, the development of programs of professional modules, the formation of professional competencies of graduates, programs of academic disciplines and professional modules, funds of assessment tools!

<https://ma.yu.edu.kz/sobytiya/b%d2%afgin-yessenov-university-inde-te%d2%a3iz-tehnikasy-zh%d3%99ne-tehnologiyasy-ba%d2%93yty-bojynsha-respublikaly%d2%9b-duplicate-1-duplicate-1/>

President of the Legal SERVICES COMPANY Madatov Samir Teimurshah Oglu specially arrived at the Yessenov University Maritime Academy to discuss issues of training Marine personnel. At the moment, we are working closely with the Azerbaijan State Maritime Academy in terms of exchange for academic mobility of teachers and students. <https://ma.yu.edu.kz/sobytiya/te%d2%a3iz-akademiyasynda-zh%d2%b1mys-berushiltermen-kezdesu-%d2%b1jymdastyryldy/>

Memoranda of cooperation were signed between YU and ship Equipment and Service LLP, YU and VMTA (Batumi State Maritime Academy).

Contracts were concluded with Yeskertkish Kyzmet Kazakhstan LLP, FAM" register of maritime shipping of Russia", a dual education agreement was concluded with ship equipment and service LLP

14.4 Water sensitive waste disposal

14.4.1 - 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.)?

- No.

14.4.2 - Does your university as a body have an action plan in place to reduce plastic waste on campus?

- Yes. Training of highly qualified personnel with knowledge and skills to carry out research and development work in the field of design and design of ships, design of ship power complexes, installations and equipment, taking into account modern requirements of information, industrial and environmental safety.

Skills

- participation in fundamental and Applied Research in the field of Water Transport, Shipping, Transport and technological equipment;
- development of plans, programs and methods for conducting research on objects of professional activity;
- planning a model experiment and processing its results;
- modernization and design of existing ship power equipment, marine engineering facilities using automation tools;
- development of design and technological documentation in accordance with the requirements of international standards;
- participation in the development of projects of ship power equipment, marine equipment facilities, taking into account technological, design, operational, aesthetic, economic and management parameters that ensure their effectiveness;
- assessment of the innovative potential of the project being implemented, assessment of innovative risks of commercialization of projects.

Leading positions

After completing the educational program 7M07112 – "Marine Engineering and technologies", the graduate acquires: professional, global, digital, research, personal and management competencies.

7M07113 - "management of Water Transport and ensuring navigation"

Description

Training of specialists capable of effectively solving the tasks of managing maritime transport, transport and logistics and transport and technological water

transport systems and ensuring the safety of shipping in accordance with international standards.

Skills

- participation in the assessment of the economic efficiency of production activities of water transport enterprises;
- ensuring safety at enterprises in the field of water transport.
- conducting tests and determining the operability of installed, operated and repaired technological equipment, monitoring its safe operation.
- participation in the preliminary feasibility study of project calculations.
- development and improvement of technological processes and documentation;
- analysis of the state and dynamics of quality indicators of objects of professional activity using the necessary research methods and tools;
- development of plans, programs and methods for conducting research on objects of professional activity;

Leading positions

After completing the educational program 7M07113 –"management of Water Transport and ensuring navigation", The Graduate acquires: professional, global, digital, research, personal and management competencies.

<https://ma.yu.edu.kz/ba%d2%93darlamalar/>

14.4.3 - Does your university as a body have a policy on preventing and reducing marine pollution of all kinds, in particular from land-based activities?

- Yes. By decision of the Board of Directors of Yessenov University (12.08.2018. in protocol No.13 FRAMEWORK CONVENTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT OF THE CASPIAN SEA

14.5 Maintaining a local ecosystem

14.5.1 - Does your university as a body have a plan to minimise physical, chemical and/or biological alterations of related aquatic ecosystems?

- No

14.5.2 - Does your university as a body monitor the health of aquatic ecosystems?

Yes. Scientific projects on improving the quality of water under the Department of Ecology are being developed.

1. The scientific and technical project of Yessenov University received a grant

In the competition for grant funding for scientific and technical projects in 2022-2024, the project "Development of a solar-thermal desalination plant based on a heat pump" under the leadership of Acting Professor of Yessenov University, PhD Samal Syrlybekovna received 66 million tenge by the decision of the meeting of the NNS Council.

The idea of the project is to develop a prototype of a small desalination plant based on a solar distiller with a heat pump for the production of clean water for remote settlements of the Caspian region of Kazakhstan, testing the performance of clean water and drawing up a feasibility study for the use of a heat desalination plant for local conditions.

2. DEVELOPMENT OF A METHOD FOR COLLECTING DRINKING WATER FROM ATMOSPHERIC AIR DUE TO THE HUMIDITY OF THE REGION

Project 1. <https://yu.edu.kz/ru/yessenov-university-%D2%93ylymi-tehnikalyq-zhobasy-grant-ielendi/>

Project 2. <https://ysj.yu.edu.kz/wp-content/uploads/2022/12/fitog-%E2%84%962-43-2022-119-127.pdf>

14.5.3 - Does your university as a body develop and support programs and incentives that encourage and maintain good aquatic stewardship practices?

At Yessenov University, students of the Faculty of Engineering developed a startup project on a water purification device. The price of the project was supported by the University. Water purification apparatus is working on the market as a startup. Installed a water apparatus in all residential buildings. This project has received a patent and is working on it at the expense of the University.

In addition, students of the Department of Physics together with the teacher developed a desalination plant for groundwater. This project received a state grant. In addition, with the support of the University, a patent was obtained from state registration, and the prototype of the project was installed in the fields in the courtyard of the University

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

Our partner universities of Caspian countries along the Caspian Sea:

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- <http://www.astu.org/Content/PageInstitute/3531> (Astrakhan state technical University, Russian Federation)
 - <http://www.vsuwt.ru/sveden/education/Infoop.php?nohead=true> (Volga state University of water transport, Russian Federation)
 - <https://www.nhlstenden.com/en/miwb> (Maritime Institute Willem Barentsz, Netherlands)
 - <https://www.unikl.edu.my/institutes/mimet/> (University Kuala-Lumpur, Malaysia)
 - <http://www.gidf.yildiz.edu.tr/en> (Yildiz Technical University, Turkey)
 - <http://adda.edu.az/ru/faculty/1> (Azerbaijan State Maritime Academy, Azerbaijan)

Local organizations that the university cooperates with to conserve the region's water resources:

Joint Stock Company "Institute of Geography and Water Security" Ministry of Education and Science of the Republic of Kazakhstan

<https://ingeo.kz/?lang=en>

Mangystau Nuclear Power Plant (MAYAK)

<https://yu.edu.kz/en/birlese-kadrlardyi-dayyindau-ta-yiryibyi-boyyinsha-d-gelek-stel-tti/>

14.5.5 - Does your university as a body have implemented a watershed management strategy based on location specific diversity of aquatic species?

- No.

Newsletter 1:

Within the framework of the convention training of sailors, students of the Yessenov University Maritime Academy took courses in accordance with the requirements of the convention of the International Maritime Organization in the Caspian Sea Training Center of the Institute of sea and river transport of the Russian Federation, Astrakhan from 29.01 to 10.02.

The convention training included the following courses:

- initial training and instruction on safety issues (Basic Training) protection training (for persons without assigned duties)
- initial training for work on oil tankers and chemical transport tankers (Part A-V/1-1, Table A-V/1-1-1)

- specialist training on lifeboats and consequences first aid training (Part A-VI/4, Table A-VI/4-1)



The link: <https://www.youtube.com/watch?v=6wWBCQIKSXQ&t=1s>