

Brief information about the project

Name of the project	G-202304-70191 CRDF Global - Development of a manual on "Biorisk Management in the Life Sciences"
Relevance	The manual is an educational and methodological handbook for the discipline "Biorisk Management in the Life Sciences", including 15 lecture notes and reference data on the main aspects of this problem, seminars with sample questions for discussion, case studies and exercises to consider specific situational problems, and tasks for Students' Individual Work (SIW), final test questions, list of references and appendixes. The manual "Biorisk Management in the Life Sciences" is written in English, Kazakh and Russian, which will make it accessible to a wider audience not only in Kazakhstan, but also abroad. This interdisciplinary manual is intended for master's and undergraduate students of various specialties in the field of natural sciences, young scientists and university teachers, representatives of research institutes and laboratories, as well as all the people involved in biological risk management. It has an electronic format and can be used for full-time and distance learning.
Purpose	Development of a manual on "Biorisk Management in the Life Sciences". The purpose of the manual is to develop new competencies in students, including the development of modern knowledge and practical skills necessary for managing biorisks in the life sciences, timely detection, mitigation, prevention of hazardous impacts on the environment and humans, as well as increasing the responsibility of scientists in science and industry activities, which is in line with SDGs 3 and 4.
Objectives	<ol style="list-style-type: none">1. Analysis of international and Kazakh scientific and technical sources and regulatory documents in the field of biorisk management in laboratory practice;2. Development of a biorisk management manual in accordance with the approved content;3. Translation of the manual (Russian version) into Kazakh and English;4. Review of the manual by Kazakhstani and foreign experts;5. Posting an electronic version of the manual in 3 languages on the websites of the Faculty of Geography and Environmental Sciences, the UNESCO Chair for Sustainable Development of Al-Farabi Kazakh National University, the information and communication platform "Green Bridge through Generations", as well as on the website of the partner organization NTSC RK.

Expected and achieved results	<p>Analysis of modern ideas and a competency-based approach to students' mastery of the following topics:</p> <ul style="list-style-type: none"> • Biological Threats in the 21st century; • International framework and Regulations, Kazakh National Legislation on biosafety; • Biological dual-use goods and new technologies, dual-use research in the life sciences; • Biorisk and its assessment, biosafety and biosecurity; • Biorisk management in laboratory practice (detection, mitigation measures, operations and maintenance, etc.); • Elements and activities on cyber-biosecurity, cyber-physical and information security: development of policies, programs and action plans; • Export Control ICP for bioindustry enterprises; • Bioethics and culture of risk management in scientific research and the bioindustry.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	<p>1. Tazhibaeva Tamara - Candidate of Biological Sciences, Associate Professor. ResearcherID – ORCID – https://orcid.org/0000-0001-8813-1440 Scopus Author ID – 57196237254</p> <p>2. Базарбаева Турсынкул Аманкелдиевна – к.г.н., доцент. ResearcherID – ORCID – https://orcid.org/0000-0001-8775-1234 Scopus Author ID -56784399000</p>
List of publications with links to them	<p>T 27 Tazhibayeva, T.L. Biorisk Management in Life Sciences: Teaching manual (English, Kazakh, Russian). Electronic edition. – Almaty, 2023. – 305 p. ISBN 978-601-04-6546-6 https://www.kaznu.kz/en/25189/news/one/38753/ https://www.kaznu.kz/en/26889/page/ https://greenbridgework.kaznu.kz/?page_id=1090 https://ntsc.kz/?p=1022&lang=en_US</p>
Patents	-