Guidelines

with recommendations for developing a sustainable development strategy in Ukrainian universities

in conditions of limited funding under martial law and post-war reconstruction in Ukraine

Trans Learn N

Co-funded by the European Union

Guidelines with recommendations for developing

a sustainable development strategy in Ukrainian universities

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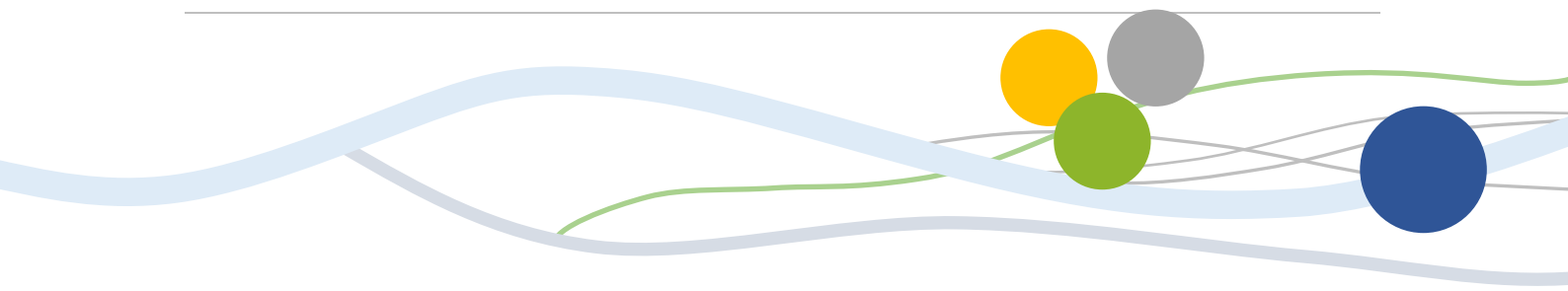
ABBREVIATIONS AND ACRONYMS

Abbreviation	Full form
IDP	internally displaced persons
HEI	higher education institution
EU	European Union
UN	United Nations
SDG	sustainable development goals
GRI	Global Reporting Initiative
ESG	Environmental, Social, and Governance
ISO	International Organization for Standardization
KPI	Key Performance Indicators
STEM	science, technology, engineering and mathematics



INTRODUCTION

The post-war recovery of Ukraine poses a challenge to society not only to physically rebuild the destroyed infrastructure, but also to transform social, economic and environmental foundations of the country's development. In the context of global challenges focused on long-term stability, social justice and environmental safety, the integration of sustainable development principles into higher education system, which is changing in response to the growing need for sustainable development, is of particular importance.

Universities have always played a key role in the formation of human capital as the basis for the long-term development of a state. They train specialists who influence economic, political, cultural and social processes.

In the past, higher education focused on providing students with technical skills and knowledge needed for their chosen specialties in specific industries. However, the growing global challenges of environmental and social unsustainability have changed the role of higher education. In the context of current challenges, their function is changing. Higher education institutions (HEIs) are a driving force in promoting the ideas of sustainable development.

Universities and colleges have a special space for teaching, research, and working with local communities to implement sustainable development ideas while solving the urgent problems of post-war reconstruction in Ukraine. HEIs have the potential to be a catalyst for recovery and a source of innovation for creating a culture of sustainability.

Sustainable development is becoming crucial for Ukrainian higher education institutions in the context of the country's post-war recovery as there is a need not only for physical restoration of the infrastructure, but also for the creation of new models of social and economic development. Thus, it requires a redefinition of the role of universities. It is the HEIs that should become the centres of change ensuring the recovery, sustainability and long-term transformation of Ukraine based on sustainable development principles.

In response to global challenges and new approaches to education and science in the context of post-war recovery of Ukraine after the large-scale destruction caused by the war, physical loss of human capital, hard social, economic and environmental consequences of the war, universities should integrate new approaches to education and science through:

- training of experts who understand the nature of systemic crises - from energy instability to demographic changes;
- development of new competences to solve complex interdisciplinary problems of reconstruction;
- ensuring the flexibility of training programmes in accordance with the dynamic needs of the regions undergoing recovery.

The integration of sustainable development ideas into the daily activities of Ukrainian higher education institutions is relevant for several reasons.

Firstly, post-war reconstruction requires new competences, not only technical, but also humanitarian, ethical and managerial.

Secondly, environmental risks are growing - destruction, pollution, energy instability requiring new solutions.

Third, to overcome the psychosocial consequences of the war, education should be inclusive, safe, and student-centred.

Fourthly, international support from donors, the EU, and the UN - investments in systemic changes, particularly in the education sector.

Thus, in the context of Ukraine's post-war transformation, the role of universities is

growing significantly: they are expected not only to train qualified experts, but also to shape a new development paradigm - sustainable, inclusive and innovative.

Universities in post-war Ukraine should not only play the role of educational and scientific institutions, but also become active participants in the deep transformation of society.

In the post-war period, education should become a platform for rethinking the values and goals of social development; training a generation capable of rebuilding the country not according to the old models, but through the prism of sustainability and justice; institutional strengthening and modernisation of the learning environment.

Purpose and objectives of the Guidelines

The role of universities as centres of knowledge, innovation and social leadership in post-war Ukraine is that they are not only educational establishments but also the recovery impetus and should:

- generate knowledge that helps solve problems of infrastructure, environment and social cohesion recovery;
- provide applied solutions for the devastated regions - in terms of energy efficiency, sustainable construction, agricultural innovation, etc;
- educate a new generation of leaders: sustainable, ethically oriented, capable of leading the country through sustainable development in the European area;
- facilitate the psychosocial adaptation of students, especially those from the affected areas.

In this context, the purpose of these Guidelines is to develop a holistic, strategically oriented approach to the implementation of sustainable development principles in the management of higher education institutions (HEIs) as a recovery impetus.

The Guidelines should serve not only as a practical tool for universities in the period of transformation and a guide for integrating the principles of environmental, social and economic sustainability into the management, educational and research activities of HEIs. It should also become a basis for the development of long-term strategies that take into account international benchmarks (UN SDGs) and at the same time meet Ukrainian challenges to restore human potential.

Regulatory framework and international standards

In the context of the country's post-war recovery, the effective application of international standards and national legislation that promote environmental, social and economic sustainability is of particular relevance.

International standards and initiatives:

UN Sustainable Development Goals (SDGs) were adopted within the framework of the UN 2030 Agenda, which has 17 Sustainable Development Goals and 169 targets covering all aspects of sustainable development for countries on the path to recovery. For Ukraine, which is recovering from the war, the SDGs should become the main guide for policy and reforms. For universities the SDGs should become a basis for rethinking educational approaches, research content and partnerships.

Goal 4 - quality education - is particularly important, which involves not only restoring the access to education destroyed by the war, but also transforming the curricula according to new challenges: digitalisation, inclusiveness, and sustainable thinking.

ISO 14001 - Environmental management system

In the context of university infrastructure recovery, the implementation of ISO 14001 principles enables to develop environmentally responsible approaches to energy efficiency, waste management, and green campus design. This standard promotes ecological restoration of territories and sustainable design of university facilities.

ISO 50001 - Energy Management System

The use of this standard is crucial at a time when the country's energy infrastructure is partially destroyed. The implementation of ISO 50001 in universities enables to reduce the dependence on traditional energy sources, optimise energy consumption and promote the use of renewable energy sources, a key component of Ukraine's sustainable recovery.

ESG criteria (Environmental, Social, Governance)

ESG standards provide a holistic approach to assessing the performance of universities as active players in the post-war transformation. Environmental responsibility, social inclusiveness and effective governance are the foundations for the formation of open, sustainable and accountable educational establishments that will contribute not only to the recovery but also to the modernisation of the country.

National documents and strategies

Ukrainian legislation provides for a variety of regulations governing the sustainable development in various areas and during the post-war recovery period. They play an important role in coordinating the efforts to rebuild and modernise the country. This includes laws and regulations relating to:

- **ecology** (laws on environmental protection, rational use of natural resources and prevention of pollution, which are the basis for environmentally safe recovery of territories);
- **energy efficiency** (energy efficiency programmes that provide universities with tools to reduce resource consumption in the recovery process);
- **education** (norms that support the integration of sustainable development principles into curricula and research are crucial to educating a new generation of professionals capable of rebuilding the country);
- **social protection** (provisions to support vulnerable groups, including internally displaced persons, veterans, and disabled, which is an integral part

of creating a fair education space after the war).

State strategies for energy efficiency and sustainable development of education.

The National Energy Efficiency Strategy 2030 includes the goals that directly relate to the university infrastructure recovery using modern energy-efficient technologies.

The Strategy for Sustainable Development of Education focuses the universities on environmental education, the development of research in sustainable construction, renewable energy, and climate adaptation which are extremely important areas in post-war Ukraine. HEIs play a leading role in localising these initiatives adapting them to the reconstruction realities and using them as a tool to attract international support.

The Law of Ukraine "On Education" is the basic document that regulates the development of the education system in the context of post-war transformation, in particular. The law creates a legal framework for equal access to education, inclusion and innovative development which are crucial when creating a new quality of learning environment in the context of reconstruction.

The integration of international standards and national regulations into the university activities provides for a holistic strategy of sustainable post-war development. This approach not only meets the expediency, but also creates the foundation for the long-term sustainability of Ukrainian society.

Basic principles of sustainable development

The International Framework for Sustainable Development as a reconstruction tool is a direction towards sustainable development defined by global and European programmes that should become the guidelines for formulating the university policies, namely:

- The UN's 2030 Sustainable Development Goals (SDGs) are particularly relevant in terms of poverty eradication, quality education, gender equality, innovative infrastructure, peace and institutional sustainability.

The European Green Deal is a new opportunity for HEIs in the field of green reconstruction, energy efficiency, climate technologies and the transition to a circular economy.

Sustainable development is not a luxury, but **a necessity** for survival and progress in the post-war reconstruction. The universities should facilitate the following:

- **institutional strengthening** of the country that is losing personnel due to the war;
- **mobilisation of intellectual potential** aimed at real needs;
- **establishing interregional relations** through university partnership networks;
- **transition to a future in which recovery goes hand in hand with** social, cultural and environmental **transformation.**

Post-war recovery requires a comprehensive approach to the transformation of the higher education system. This process should be based on sustainable development principles adapted to the challenges and opportunities of the post-war context.

1. Integration of economic, environmental and social aspects. For post-war Ukraine it is extremely important to implement an integrated approach to university development:

- **the economic aspect** (effective financial management, attracting investment in learning infrastructure reconstruction, creating partnerships with international donors and businesses to recover the economic potential of the territories);

- **environmental aspect** (sustainable use of natural resources in the reconstruction of the destroyed infrastructure by implementing energy-efficient solutions, water supply systems, green construction, etc;)
- **social aspect** (ensuring access to education for all categories of population, including internally displaced persons, veterans, disabled, as well as establishing strong university communities that support social cohesion).

2. Transparency and accountability. In the post-war environment, transparency is a key to building trust in universities as institutions that use resources for the benefit of the society. HEIs should:

- openly report on sources of funding, especially international aid and grants for recovery;
- provide regular reports on the progress of sustainable development projects, especially those related to infrastructure reconstruction;
- involve the public, external experts and international organisations in the evaluation of their programmes to ensure objectivity and social legitimacy.

3.Innovation. Implementation of the latest technologies and methods to ensure environmental and social sustainability. Innovations should become the core of the post-war recovery strategy. They include:

- **technological innovations** which involve the implementation of energy-saving systems, digital transformation of university infrastructure, and the development of green technologies in campus recovery;
- **innovations in education** aimed at applying hybrid learning models, creating professional retraining programmes for veterans and people who lost their jobs due to the war;
- **social innovations** which focus on developing models for adaptation and integration of vulnerable groups, promoting youth civic leadership, and supporting local community reconstruction initiatives.

4. Inclusiveness. In the context of large-scale displacement, loss and trauma, universities should become spaces of recovery, safety and equality by:

- ensuring equal access to education for everybody, regardless of region, language, age or physical condition;
- developing inclusive governance policies that support the participation of all groups of the university community in decision-making;
- creating psychosocial support for students and teachers affected by the war.

5. Continuous improvement implies the ongoing monitoring and review of programmes, initiatives and processes at all levels of the university, enabling them to adapt to new challenges and improve their performance through:

- systematic monitoring and evaluation which allow the universities to respond quickly to changes in the regions, optimise recovery programmes and improve their effectiveness;
- support of the environment for innovation that encourages teachers, students and top management to create new solutions to post-war needs;
- feedback from students, local communities, and international partners which is a source of valuable information that helps adjust sustainable development strategies.

These principles form the basis for the sustainable development of universities, enabling them not only to integrate sustainable practices into their activities, but also to become an example for other institutions and society as a whole.

1 UNIVERSITY SUSTAINABLE DEVELOPMENT POLICY

1.1. University mission, vision and strategic goals in the post-war recovery of Ukraine through sustainable development

In the context of sustainable development, the university **mission** is to build an environmentally, socially and economically responsible society through education, research and partnership. In the post-war period, this mission is especially important as universities play a key role in the recovery of the state, its human capital, economy and ecology.

This requires an **integrated approach** to all aspects of the university activities.

Education should create a generation of young people who are able to think critically, make decisions in uncertain conditions, act on the ground of sustainable development principles and be agents of recovery. This involves updating the training programmes with a focus on environmental literacy, social inclusion, infrastructure reconstruction, psychosocial rehabilitation and democratic governance.

Science involves interdisciplinary research to create innovative solutions in the field of reconstruction: energy-efficient housing, sustainable transport systems, rehabilitation medicine, psychological support, digital transformation, sustainable agricultural production, etc.

Partnership ensures the coordination of efforts with international donors, government agencies, local communities, businesses and NGOs to implement recovery projects. Through such partnerships, universities can ensure the effective implementation of sustainable development initiatives at both local and national levels.

Key principles of the mission:

- **environmental awareness** - Ukraine's recovery should be based on the principles of green construction, biodiversity protection, restoration of natural resources and implementation of environmentally friendly technologies;
- **social responsibility** - creating conditions for equal access to education, medical services and employment for all citizens, including veterans, internally displaced persons and representatives of vulnerable groups;
- **ethical attitude to resources** - ensuring responsible and rational use of natural, human and financial resources taking into account their limited availability, fair and efficient distribution, prioritising the long-term interests of the society in the country recovery.

Vision. Universities should see themselves as **leaders in Ukraine's recovery** due to sustainable development, innovation and social partnership. This means:

- **leadership in education and science** - development and implementation of programmes that train a new generation of professionals for the reconstruction sector: energy managers, urbanists, social workers, doctors, IT specialists, psychologists;
- **innovation** - the use of modern technologies to solve problems of infrastructure reconstruction, resource management, digitalisation of public services, and training in times of crisis;

- **partnership** - close cooperation with international organisations, foundations and universities to attract investment, knowledge and practices in the post-war transformation process.

The university should strive to become a centre of competence in the field of sustainable recovery which shapes policy, educates professionals and serves as a platform for public dialogue.

Strategic goals.

1. Promoting an environmentally friendly and responsible lifestyle through:

- *curricula* with a focus on ecology, energy efficiency, and circular economy;
- *campus initiatives* for eco-volunteering, waste recycling, and extensive greening;
- *information campaigns* to disseminate knowledge about sustainable development through seminars, exhibitions, publications and other media to help students become more conscious in their daily lives;
- *Change Agency - support for student and academic initiatives for post-war recovery.*

2. Reducing the carbon footprint and saving resources through:

- *energy saving* (the development of energy saving strategy and the implementation of energy efficient measures in the university infrastructure, the use of renewable energy sources - solar panels, wind turbines, etc;)
- *transport initiatives* (encouraging students and employees to use environmentally friendly transport - bicycles, public transport, electric cars);
- *waste management* (developing a waste disposal and recycling strategy to reduce CO_2 emissions through proper waste management on campus).

3. The implementation of resource-saving technologies is a prerequisite for achieving university sustainable development and it includes:

- *energy efficient buildings* (the implementation of green standards in the construction and reconstruction of university buildings, the use of technologies to reduce energy and water consumption);
- *renewable energy sources* (the installation of solar panels, wind turbines, the use of geothermal energy to provide autonomous energy supply to the campus);
- *circular economy* (the application of technologies to recycle and reuse resources such as water, construction materials and technical equipment).

4. The integration of sustainable development into all levels of university life through:

- introducing the SDGs and post-war issues into all curricula;
- focus on project-based learning, cases with real challenges of post-war Ukraine;
- assessing the effectiveness of efforts using ESG criteria.

The university sustainable development policy should contribute to the comprehensive

transformation of Ukrainian society in the context of reconstruction. It includes:

- environmental reconstruction of cities and communities;
- inclusive education and human capital development;
- economic growth based on innovation, green technologies and social cohesion.

Achieving these goals will help the university not only to reduce its environmental and social impact, but also to become a leader in the sustainable and equitable recovery of Ukraine.

1.2. Commitments to stakeholders

In the post-war period, Ukraine is facing the challenges of reconstructing its infrastructure, social welfare and environmental balance. Universities should play a strategic role in shaping a new, sustainable model for the country's development.

The university's main commitments to key stakeholders:

to students:

- educating recovery leaders - to train professionals capable of leading projects for critical infrastructure reconstruction, regions development and social reintegration of the affected communities;
- education for sustainable development - implementation of training programmes focused on urban recovery, resource management, environmental technologies and energy security;
- involvement in real projects - the opportunity to join reconstruction initiatives, participate in volunteer, social, and environmental projects in communities that are in need of support;
- developing values of responsibility - education should emphasise the importance of environmental conservation, social cohesion and ethical use of resources in the context of reconstruction;

to employees:

- professional support - ensuring appropriate working conditions for teachers and staff, particularly in war-affected regions, and supporting their adaptation through psychological and social assistance programmes;
- involvement in the reconstruction process - creating conditions for teachers to participate in research, expert assessments and the implementation of recovery practices;
- environmental and social education - raising the level of environmental and social awareness of university employees as participants in the sustainable transformation of the country;

to communities:

- partnership in the reconstruction of territories - active cooperation with local communities on urban reconstruction, energy-efficient housing, clean water, and a safe environment;
- educational development centres - holding open courses, workshops and seminars in the regions to raise the level of knowledge about recovery and sustainable development;
- social integration - ensuring inclusiveness, including support for IDPs, veterans, disabled people and other vulnerable groups in the process of community recovery;

to the business:

- innovative partnership for recovery - joint development of innovative solutions in the spheres of green energy, waste disposal, infrastructure recovery, logistics and digital transformation;
- training professionals for economic recovery - curricula in entrepreneurship, recovery management, environmental construction and social business;
- the development of sustainable business models - the University fulfils the mission of a hub for start-up development focused on the needs of the post-war economy and the creation of new jobs.

General principles for all stakeholders:

- transparency and accountability - the University should regularly inform the public about the progress of recovery initiatives, results achieved, partnerships and impact on communities;

- networking - joint implementation of projects with government institutions, international partners, communities and businesses will contribute to a large-scale recovery effect;

- a long-term approach - rebuilding Ukraine is a strategic process that should be based on the principles of sustainability, resource conservation and social justice.

Commitments to stakeholders allow the university to become an important change agent in the society, ensuring the integration of sustainable practices in all areas of its activities.

1.3. Integrating sustainable development into educational, research and administrative activities

Integrating the principles of sustainable development into all areas of university activity enables to respond to the social, economic and environmental challenges faced by the country.

This approach should encompass **curricula, research, and administrative infrastructure**, forming a holistic ecosystem that contributes to Ukraine's sustainable recovery.

Educational activities are aimed at training a generation for reconstruction, which in turn implies:

- **adaptation of training programmes by** introducing the courses focused on post-war reconstruction into a curricula. The courses suggest learning of sustainable development of territories, environmental planning, crisis management, social integration, energy security. The courses such as 'Community Recovery Management', 'Green Energy', 'Sustainable Area after Conflicts' should become a part of basic education.
- **an interdisciplinary approach implies that** in today's environment, students should learn interconnected thinking, as the principles of sustainable development should be integrated into economics, law, architecture, social sciences, and medicine; training of engineers should include environmental assessment of infrastructure reconstruction;

- **project-based learning requires** students to engage in real-world projects related to energy-efficient building reconstruction, water purification, the development of environmentally friendly transport, or support of communities affected by the war;
- **educational activities through** lectures, discussions, flash mobs and

information campaigns raise environmental and social awareness and create a culture of responsibility for the country's future.

Research is the intellectual area of recovery which involves:

- **focus on topical issues**, as university research should address specific challenges: ecosystem recovery, sustainable transport, safe construction, social cohesion, and rural recovery.
- **international scientific cooperation involves** the participation of Ukrainian universities in international research programmes aimed at overcoming the consequences of the war, developing a green economy and urban reconstruction, partnership with the EU, participation in programmes such as *HorizonEurope*, UN, UNEP and UNESCO initiatives;
- **innovative solutions for recovery** are primarily the creation of new technologies for recycling construction waste, air and water purification, household waste management, and the development of sustainable building materials;
- **the development of science leadership** implies that postgraduate programmes and research schools should contribute to the training of professionals capable of leading the sustainable reconstruction of Ukraine.

Infrastructure modernisation, as an example of sustainable reconstruction, is:

- **energy-efficient and green campuses** which imply the modernisation of university facilities due to the principles of environmental efficiency: thermal insulation, solar panels, LED lighting, rainwater collection systems, smart energy metering systems;
- **the use of renewable energy:** the transition to solar, wind, and bioenergy on campuses not only reduces costs but also sets an example for local communities.
- **water management through** the rational use of water, filtration systems, and the reuse of process water is an important part of infrastructure reconstruction.
- **green zones for mental health recovery,** such as spaces for recreation and rehabilitation, green gardens, silence zones, eco-parks, which should be integrated into the design of universities.
- **the transition to a circular economy involves** the introduction of zero-waste systems, composting, plastic recycling, and waste sorting - all of which are creating a new environmental culture among students.

Universities, as centres of knowledge and change, should not only adapt to new challenges, but also create an environment in which the new generation can build a **sustainable, environmentally friendly and socially just Ukraine.**

1.4. Ethical principles and social responsibility

In the post-war period, universities play an extremely important role not only as educational and research institutions, but also as a driving force for social renewal. In the context of the country's post-war reconstruction, ethical standards and social responsibility should become the basis of every higher education institution's development

strategy. They contribute to the formation of a healthy, transparent and inclusive environment necessary for the sustainable rehabilitation and consolidation of the society.

1.4.1. Academic integrity as a basis for trust and quality

Honesty and transparency should guarantee impartiality in studies and research, especially in a society undergoing profound transformation. Preventing plagiarism, data falsification and other forms of academic fraud is crucial to maintaining trust in science which is the foundation for effective recovery of the country.

Research ethics in post-war realities means that research projects should comply with ethical standards, taking into account the consequences of the war for humans and nature, respecting the rights of research participants, and using data responsibly. In the context of post-war Ukraine, it is extremely important to prevent manipulation of facts and ideological pressure on science.

Ethical education of students implies that the young generation should learn to live and work according to ethical principles. Arranging courses, seminars and workshops on academic integrity, social justice and responsible leadership is a key condition for creating an ethical culture of the new society.

1.4.2. Transparency, openness and engagement in management

Public reporting. Universities should regularly inform the public about the progress of educational, research and social programmes, especially those funded by the state or international reconstruction budget, as transparency in the use of resources and reporting on sustainable development sets a model for other institutions in the country.

Access to information. In the context of post-war reconstruction, it is crucial to ensure open access to policies, training programmes, research and analytics. It enables greater community involvement in the educational process and facilitates cooperation with businesses and international donors.

Shared decision-making. Reconstruction requires teamwork, involvement of students, teachers, and community members in shaping sustainable development policy, reforming the educational process, or planning infrastructure reconstruction. It promotes collective responsibility and legitimacy of decisions.

1*.4.3. Compliance with environmental standards in reconstruction*

Environmental responsibility means that universities comply with environmental regulations and take initiatives that reduce their environmental footprint by integrating environmental standards into the construction and operation of university facilities, waste recycling, reducing energy consumption and cutting carbon emissions. This not only reduces environmental damage, but also cuts down costs in the long run.

Environmental practices on campus. A university can actively implement environmental programmes such as environmentally friendly transport, green areas, and hands-on training for students in environmental standards and behaviour.

Participation in ecosystem recovery. Universities should actively cooperate with local communities to support environmental initiatives at the regional level. It can include the participation in projects aimed at environmental protection, natural resources conservation and ecosystem recovery. This creates a link between science, education and the real needs of the country.

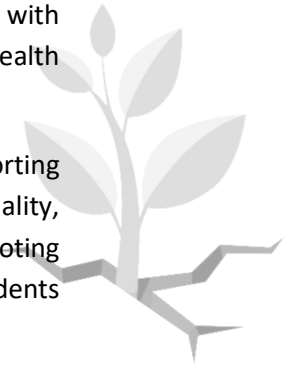
1.4.4. Social responsibility and community support

Inclusiveness and social justice as a priority for reconstruction. Post-war reconstruction cannot be effective without the involvement of all segments of the population. Universities should create equal opportunities for people from low-income families, IDPs, veterans, and disabled people by supporting them with special programmes, scholarships, and social services.

Support for local communities. HEIs should become centres for the recovery of local communities through volunteer programmes, social projects, legal aid, and education hubs. This enables not only to integrate students into social life, but also to ensure the growth of trust in the university as an institution.

Corporate social responsibility. Universities should demonstrate responsible management, including transparent use of resources, ethical treatment of staff, cooperation with communities, and support for mental health and well-being.

Addressing social inequality. Supporting projects aimed at addressing social inequality, combating discrimination and promoting socially responsible attitudes among students and employees.



1.4.5. Commitment to international standards

Support for international initiatives. A University should support international standards of ethics and social responsibility, participate in global initiatives on environmental protection, human rights and sustainable development, and promote the integration of these standards into its internal policies.

Cooperation with international organisations. Universities can cooperate with international organisations, such as the UN, the EU, and international NGOs to support the general principles of sustainable development and social responsibility.

Universities should become a space of trust, justice and openness, from which the leaders of the new society will emerge - ethical, socially sensitive, environmentally conscious, as this is the only way to a sustainable, just and prosperous state.

2. ORGANISATIONAL STRUCTURE AND MANAGEMENT

2.1. Management responsibility

In the post-war Ukraine, universities should become active participants of national recovery by integrating the principles of sustainable development into all aspects of their activities. University top management plays a crucial role in shaping the strategic vision, mobilising the resources and consolidating the university community around the goals of a sustainable future. In the context of the country's large-scale recovery, management decisions should be effective, transparent and focused on long-term impact.

Key aspects of management responsibility:

Creating an institutional infrastructure for sustainable development. The university management should establish a specialised sustainability unit to coordinate all relevant initiatives. In the post-war environment, such a unit can become a platform for cooperation with international partners, NGOs, and local communities in the framework of recovery projects. It should include the representatives of the top management, the academic community, students, and experts in recovery and environmental modernisation.

Targeted funding for reconstruction initiatives. In the context of reconstruction, sustainable development requires real budget to be provided. The top management should:

- allocate funds for energy-efficient reconstruction of buildings, use of renewable energy sources, and introduction of waste recycling technologies;
- invest in the development of student and research projects aimed at recovering the environment, communities, and social infrastructure;
- attract grant funding from international donors that support Ukraine's recovery through educational, scientific and environmental programmes.

Such resources contribute not only to the internal development of the university, but also to real participation in the reconstruction of the territories affected by the war.

Determining clear performance indicators (KPIs). Top management should establish a system for evaluating the results of the sustainability policy implementation. KPIs should include: the dynamics of energy consumption reduction; the number of reconstruction projects involving the university; the indices of student participation in social and environmental initiatives; the effectiveness of attracting external funding; changes in the environmental and social profile of the university infrastructure.

Publicity and reporting. The university top management should publish annual public reports on the implementation of the sustainability policy. The reports should include progress in infrastructure reconstruction, social initiatives, and the achievements of students and teachers. Such reports are not only a means of control, but also a source of motivation and an example for other institutions.

Inclusive management of the reconstruction processes. The top management should ensure the inclusive participation of students, teachers, researchers and technical staff in developing sustainability policy.

It involves:

- establishing working groups and advisory committees in specific areas, such as carbon footprint reduction, energy efficiency, social support, and education for sustainable development;

- holding open strategic sessions to collect ideas and initiatives;
- support for volunteer and project-based formats of student participation in local recovery initiatives.

Leadership in changes. In the post-war period, the university top management should be not only managers, but also moral and strategic leaders who shape a new culture of responsible governance focused on the future. They should not act in isolation, but in constant partnership with communities, local authorities, businesses and international organisations setting an example of responsible leadership in the country reconstruction.

In the post-war period, the university top management should be a driving force of sustainable recovery, making decisions that not only promote the development of the institution but also transform it for the benefit of the society as a whole. Through clear planning, transparent policies, smart funding and inclusive governance universities can become centres for sustainable reconstruction of Ukraine - with a focus on innovation, ethical values and community support.

2.2. Roles and responsibilities of key structural units

Effective implementation of sustainable development principles requires a clear role allocation between the university administration, academic staff, faculties and the student community.

The role of the university administration is to provide strategic guidance and infrastructure reconstruction.

The university administration is a key actor that shapes the vision, provides resources and coordinates the implementation of sustainable development policy, particularly in the context of post-war reconstruction.

Responsibilities:

- developing a long-term plan to integrate sustainable development principles into all aspects of the university's activities;
- establishing rules, guidelines and standards to ensure the sustainable functioning of the university;
- providing a budget to implement projects and attract additional funding (grants, investments);
- implementation of a monitoring system and regular publication of reports on sustainability development achievements;
- participation in global initiatives and partnerships to share experience and knowledge on sustainable recovery of the country (e.g. EU GreenDeal, HorizonEurope).

The role of academic staff (teachers and researchers) is knowledge for recovery and innovation. Teachers and researchers are knowledge carriers and change agents capable of shaping the minds of new generations of leaders in the field of sustainable development.

Responsibilities:

- integrating the topics of sustainable development and Ukraine’s reconstruction into training courses with a special focus on regional needs;
- conducting interdisciplinary research aimed at solving urgent problems of ecology, energy, urbanism, security, and social protection;
- facilitating the development of applied projects that can be implemented in the affected regions;

- arranging open lectures and science and practical conferences that facilitate the exchange of ideas on sustainable recovery;

- mentoring support for student initiatives, start-ups, volunteer and research projects aimed at rehabilitating the affected areas.

The role of students is to drive changes and practical implementation. Students are active participants and initiators of changes, as they not only acquire knowledge but also put it into practice through their initiatives and projects. Their participation in Ukraine's recovery should be both educational and practical.

Responsibilities:

- active participation in programmes, events and activities related to sustainable development;

- initiating environmental, social and infrastructure projects in communities, including in the de-occupied and destroyed territories;

- volunteering in programmes for reconstruction, landscaping, and social support for vulnerable groups of population;

- participation in student start-ups with a social or eco-technology focus that address recovery needs;

- arranging information campaigns to spread the ideas of an environmentally friendly lifestyle, resource conservation and sustainable behaviour;

- participation in national and international forums on sustainable development and post-war transformation.

The role of faculties is to create an education space for sustainable development. Faculties are the key structures responsible for implementing the principles of sustainable development in the educational process, research and professional training of students. It is at the faculty level that the overall sustainability strategy is specified in accordance with the specifics of industry training, current challenges and needs of the post-war society.

Responsibilities:

- development of courses, programmes, modules or theme blocks aimed at developing skills for post-war reconstruction related to social responsibility, energy saving, green technologies, crisis management and other aspects of sustainable development;
- preparing students for sustainable careers through training courses and programmes that include both theoretical knowledge and practical skills in environmental management, sustainable business, innovative technologies in production, etc. necessary for working in a sustainable environment;
- establishing partnerships with businesses and government agencies for students to undertake internships at reconstruction sites;
- ensuring an interdisciplinary approach to sustainable development at the intersection of natural, technical, social and human sciences.

Cooperation between the parties. To achieve the maximum effect of implementing sustainability, the university administration, academic staff and students should act as a team.

This is possible due to:

- regular consultations, meetings and discussions between all parties;

- joint projects: integration of student initiatives into university-wide programmes;
- transparent management system, ensuring openness in decision-making and progress reporting.

2.3. Interaction with external stakeholders

In order to implement an effective educational transformation in Ukraine's post-war recovery, it is extremely important for universities to cooperate with external stakeholders - international organisations, local governments, businesses and civil society. Such interaction not only empowers educational establishments, but also ensures the practical implementation of innovations aimed at the reconstruction and sustainable development of the country.

Partnership with international organisations.

Post-war transformation requires adaptation to new international education standards. Universities can cooperate with UN programmes, the European Commission, the World Bank and other organisations to modernise training programmes, integrate digital tools, develop inclusive education and strengthen the practice-oriented approach to learning.

Education exchange and academic mobility. By participating in Erasmus+, HorizonEurope and other international initiatives, universities can provide teachers and students with access to global education practices, improve the skills of their staff and bring back talent that has temporarily moved abroad.

Involvement of international experts and lecturers. Cooperation with international partners enables to involve famous experts and lecturers in the fields of sustainable development, ecology, and social responsibility in the educational process. This can help improve the quality of education and broaden the prospects for students and researchers.

International partners can provide expert assistance in developing specific curricular for infrastructure recovery, veterans' reintegration, psychological rehabilitation, etc.

Participation in international research. Cooperation with international universities and research centres enables to develop research projects in the areas of green energy, digital transformation, renewable technologies, and risk management. This can include joint research projects, publications, and research exchange which will help improve the university science level and its contribution to global innovation.

Work with the local community - education as a resource for social recovery.

Developing joint curricula for communities. The university should actively cooperate with local authorities to implement sustainable practices at the community level. This can include working together on projects aimed at energy conservation, waste management, green technologies, or sustainable transport. Local authorities can support the university in implementing environmental initiatives at the local level which will contribute to economic reintegration and social stability.

Holding open educational events. Seminars, workshops and public lectures on environmental recovery, social adaptation, psychological support and entrepreneurship can be an important component of local development.

University-community interaction platforms. Universities will act as intermediaries between the government, businesses and NGOs in shaping local sustainable development policies.

Attracting businesses - education as a driver of economic renewal

Creation of education and applied centres based at universities. Cooperation with businesses enables to open laboratories, research and innovation centres that will help train professionals to rebuild infrastructure,

develop new industries, energy systems and digital platforms.

Internships and dual education. Companies can provide students with internships on real-world post-war recovery projects which will help bridge the gap between theory and practice.

Funding for targeted curricula. Businesses can get involved in supporting educational projects, competitions, and start-ups, especially in the areas of IT, construction, energy, and agriculture which are key sectors for post-war reconstruction.

For Ukraine's post-war recovery, universities should become not only centres for knowledge, but also catalysts for social and economic transformation. Systematic interaction with external stakeholders is a strategic tool to improve the efficiency of the educational process, restore the country's intellectual potential and form a new generation of leaders capable of implementing sustainable development ideas in the real conditions of society's transformation.

2.4. Monitoring and reporting

To ensure effective implementation of the sustainability policy and demonstrate results, the university should introduce a monitoring and reporting system. This will help not only assess the progress in implementing sustainable practices, but also ensure transparency for stakeholders such as students, staff, external partners, government agencies and the public. It is important that the reporting meets international standards and is accessible to a wide range of stakeholders.

Regular publication of sustainability reports

Reporting as a transparency tool. The university should regularly publish sustainability reports that outline achievements, challenges and future plans in the area of environmental, social and economic initiatives. The reports should be made available to the public, students, teachers and partners so that everyone can see the results achieved.

Taking into account international standards. Reports should be prepared in accordance with international sustainability standards, such as the Global Reporting Initiative (GRI) or ESG (environmental, social and governance) criteria. They should contain specific data on carbon footprint reduction, energy efficiency, use of natural resources, level of social responsibility, participation in research projects, etc.

Key performance indicators (KPIs). For each area of sustainable development (environmental, social, economic), it is necessary to determine specific KPIs that will be used to assess the success of implementing sustainable development policy. This can include a reduction in energy consumption, the number of environmental campaigns, student participation in sustainable development programmes, etc.

Interactive access to reports. Reports should be publicly available through the university's official web resources and possibly through special platforms or databases where stakeholders can easily obtain up-to-date information.

Internal and external audit

The university should implement an ***internal audit*** system to regularly assess the effectiveness of implementing the sustainability policy. Internal audits help identify weaknesses in sustainability management, verify the compliance with established standards and requirements, and determine whether the goals have been achieved. This can include checking the implementation of plans for energy efficiency, social initiatives, waste reduction, resource management, etc.

External audits provide an independent assessment of the university's sustainability policy, confirmation of the reliability of reports and results, and the compliance of university

practices with international sustainability standards. External auditors can be involved in the evaluation of environmental standards, energy saving, social responsibility and other aspects related to sustainable development. It can also include auditing compliance with environmental standards such as ISO 14001 or ISO 50001.

The audits assess not only financial aspects, but also the effectiveness of the university's eco-initiatives, the level of participation of students and teachers in sustainable development programmes, the efficiency of resource management, and strategic planning in the area of sustainability.

The results of internal and external audits should serve as a basis for further improvement of the sustainability policy. Audit findings can result in recommendations for improving practices, enhancing infrastructure, introducing new initiatives or adjusting existing strategies.

Monitoring and reporting are important components of the university's sustainability management policy. Regular publication of reports enables to demonstrate achievements and inform stakeholders about results. Internal and external audits guarantee efficiency and compliance with sustainability standards. This ensures transparency, improves management processes and allows the university to continuously improve its sustainability activities.

3. ECONOMIC COMPONENT OF UNIVERSITY SUSTAINABLE DEVELOPMENT MANAGEMENT

In the context of war and post-war recovery, the economic sustainability of universities is of crucial importance. Therefore, the economic management of the university's sustainable development should adapt to the crisis context and promote the efficient use of resources, infrastructure recovery, funding mobilisation and digitalisation of educational and administrative processes.

3.1. Resource efficiency and financial sustainability

In the context of limited funding due to martial law, the university must reformat its approaches to planning and allocating funds. The prioritisation of expenditures should be based on maintaining critical functions, ensuring the continuity of the educational process, digitalisation, energy efficiency and adaptation of the learning environment to the war and post-war realities.

Universities, as large organisations, should use their financial, energy and material resources efficiently to achieve savings, maintain high quality of education and research, and preserve the environment. The university should promote the efficient use of financial, energy and material resources.

The budget should take into account not only economic indicators, but also social needs and environmental challenges. For example, funding for reconstruction projects should focus on the use of local resources, renewable materials, the involvement of internally displaced persons (IDPs) in education and employment, and the creation of a safe and inclusive environment.

Forecasting costs for critical needs. The university should develop flexible financial models for responding to emergencies, such as infrastructure damage, relocation of academic buildings, backup power supply, cybersecurity, etc. Forecasting should also include models for adaptation under the conditions of shelling, blackouts and evacuations.

3.2. Financial support for post-war reconstruction projects. Attracting external funding

International grants, humanitarian aid, support from donor agencies, and joint initiatives with international universities and foundations working in the field of post-war recovery are the key sources of development. Special departments should be set up to prepare the applications for funding of green and innovative projects related to campus recovery, energy autonomy, and psychosocial support for students and teachers.

Partnership with business in infrastructure recovery. Cooperation with Ukrainian and international companies will allow the university to join the implementation of pilot projects in the field of "smart recovery" - using modern technologies, circular economy, modular construction solutions, etc.

3.3. Energy efficiency as a basis for energy security

Conducting energy audits under the conditions of energy shortages. Systematic diagnostics of energy consumption will help identify the most vulnerable areas where energy-saving solutions can be implemented, such as building insulation, autonomous power sources (generators, solar panels), and consumption management systems.

Stimulating autonomy and sustainability. It is advisable for universities to build energy autonomy with the help of local solar stations,

battery systems and alternative energy sources that will ensure uninterrupted operation in case of emergencies.

3.4. Digitalisation as a key to adaptive management

To achieve sustainable development, the university can implement digital tools to optimise administrative, educational and research processes. This will reduce paper costs, reduce infrastructure maintenance costs and improve the efficiency of interaction between all departments.

Martial law conditions have led to a rapid transition to distance learning and administration. The university should expand this potential through cloud services and digital tools that reduce costs and improve efficiency.

Automation of management processes, document flow, resource management, risk monitoring and analytics will enable to respond quickly to changes without attracting additional human resources. Combined with e-learning, it also reduces logistics and energy costs.

E-learning and online courses. The transition to e-learning platforms reduces the cost of paper, transport and energy consumption helping to reduce the university's environmental footprint. In addition, online education makes it possible to attract students from all over the world which allows the university to actively develop international cooperation.

3.5. Implementation of circular economy and waste management

Universities can play a role as models of sustainable behaviour by implementing the principles of waste reuse, minimisation, sorting and environmentally sound disposal. In the context of the post-war resource shortage, it is especially important to introduce the reuse of building materials, recycling of paper, equipment, plastics, etc.

Digitised waste management systems allow the university to effectively control the use of materials and promote their reuse or recycling, which reduces the cost of purchasing new resources and minimises the negative impact on the environment.

In times of war and reconstruction, a university should be an example of flexible, innovative and sustainable management. The introduction of the economic component of sustainable development, combined with fundraising, resource efficiency and digital solutions, will not only help withstand the crisis, but also lay a solid foundation for the renewal of the learning environment, the development of science and social recovery of Ukraine.

During the period of martial law and post-war recovery of Ukraine, the environmental component of the university's sustainable development management get a new meaning: it should be as adaptive, resource-efficient and integrated into the national recovery strategy as possible.

4.1. Green infrastructure and energy efficiency

Green infrastructure and energy efficiency are important areas that allow universities not only to improve their environmental performance, but also to reduce energy costs, improve the quality of life on campus and promote environmentally friendly practices among students and staff.

With limited funding, priority is given to practical, low-cost measures that can be implemented quickly while reducing environmental impact and saving resources.

Use of energy-efficient building materials and equipment.

Energy-efficient construction. Universities should implement energy-efficient building standards when designing new buildings or retrofitting the old ones. This includes the use of thermal insulation materials that reduce the need for heating and air conditioning, as well as materials with a low carbon footprint. Such measures help reduce energy consumption and greenhouse gas emissions.

Use of local materials. Local construction materials with a low carbon footprint and recycled resources should be used.

Energy saving systems and smart technologies. The installation of energy-efficient heating, lighting, ventilation and air conditioning systems that automatically adjust to environmental conditions (for example, smart lighting that dims depending on the amount of natural light) reduces energy consumption. Such systems allow the university not only to save money but also to achieve high environmental standards.

Equipment with a high energy efficiency factor. The installation of energy-efficient appliances, such as LED lighting, energy-efficient air conditioning systems, and appliances with a high energy efficiency class is also an important element of energy saving in universities.

Energy-efficient solutions at low cost - available modernisation. Universities can gradually introduce energy-saving measures using low-cost technologies: replacing lamps with LEDs, installing thermostats, sealing windows and doors, and insulating individual facilities.

Creating and maintaining green areas in the university campus.

Green areas and landscape design. The creation of green areas, gardens and parks on campus helps reduce air pollution, improve air quality and provide comfort for students and staff. Green infrastructure also supports biodiversity and helps reduce the heat effect in urbanised areas.

Environmental projects. The university can implement environmental projects that should be part of the training programmes on ecology and sustainable development. Such projects contribute to the development of environmental culture among students and their involvement in practical initiatives.

Green roofs and walls. The installation of green roofs and vertical gardens can be a great solution to improve air quality and reduce ambient temperatures, especially in urban areas where natural green spaces are limited.

Flexible planning of infrastructure recovery. Phased green recovery. During post-war reconstruction, it is important to incorporate environmental principles from the outset, even

with limited resources. These can be simple measures, such as orientating buildings towards sunlight, natural ventilation, and roof gardening.

Preservation and protection of existing green areas. During repairs and renovations, trees, lawns and plantings on the university's territory should be preserved as much as possible as part of the local ecosystem.

Introduction of alternative energy sources (solar panels, wind generators).

Universities can invest in solar panels to meet their own energy needs. By installing solar panels on the roofs of buildings, they can reduce energy costs and greenhouse gas emissions. In addition, universities can use the energy generated to power the campus or sell it to the grid.

For universities located in regions with high wind energy potential, wind turbines can be an effective source of renewable energy. They help reduce dependence on traditional energy resources and ensure the sustainable development of university infrastructure.

Universities can also implement *geothermal systems* for heating and cooling. The use of geothermal energy is very efficient because it is a renewable energy source that can significantly reduce heating and air conditioning costs.

Use of available renewable energy sources. Solar panels for critical infrastructure. Universities can gradually install small photovoltaic systems to provide electricity to server rooms, shelters and classrooms - especially under the conditions of unstable power supply.

Pilot projects on alternative energy. With the support of donors or grants, universities can implement demonstration projects, such as solar benches with USB chargers or small wind turbines.

In the context of martial law and post-war recovery, the environmental component of university sustainable development should be transformed into a pragmatic, adapted to the realities model of actions that combines economy, survival, gradual modernisation and encouragement of environmental awareness. Even simple initiatives with low budgets can yield significant results in reducing the environmental burden and creating a safe, sustainable learning environment.

4.2. Waste management and environmental impact reduction

Waste management and environmental impact reduction is an integral part of the university's sustainability policy. This includes implementing effective practices to reduce waste, improve recycling and optimise resources.

4.2.1. Implementation of separate waste collection and recycling

Separate waste collection systems. Universities should create specialised containers for separate collection of different types of waste (paper, plastic, glass, organic waste, electronic waste, etc.). This will improve recycling efficiency and reduce the burden on landfills.

Educating and engaging students and staff. To succeed in separate waste collection, it is important to conduct educational campaigns among university students and staff. Information campaigns, trainings and other forms of education can stimulate behavioural changes and improve participation in environmental initiatives.

Waste recycling and disposal. To maximise recycling efficiency, universities can set up partnerships with local companies that specialise in waste management. This will help reduce the amount of materials going to landfills and increase the level of resource reuse.

4.2.2. Reducing plastic and paper use through digital solutions

Digitalisation of documents and administrative processes. Moving to digital solutions for management processes and record keeping can significantly reduce paper use. Universities can promote the use of e-signatures, e-books and learning materials, as well as digital systems for data exchange and internal communications.

Replacing plastic products. Plastic cups, bags and disposable items are often used in universities, which creates a large environmental footprint. Replacing them with reusable alternatives (e.g. cups, bags, bottles) and promoting such initiatives among students and staff will help significantly reduce plastic waste.

Digital platforms for learning and knowledge sharing. Universities can introduce online courses, webinars and other forms of digital learning, which will reduce the need for physical learning materials and paper resources, supporting sustainable development in the learning process.

4.2.3. Implementation of zero waste concept (ZeroWaste)

ZeroWaste principles. "Zero waste" concept implies that universities should strive to minimise waste production and promote the maximum use of materials with minimal environmental impact. This includes reusing materials, their recycling and avoiding disposable products.

Composting organic waste. Universities can introduce composting systems for organic waste, such as food and vegetable waste. It will reduce the amount of waste in landfills and provide a useful product for the maintenance of the university's green spaces.

Involvement of students in ZeroWaste initiatives. For the successful implementation of the concept, it is important to involve students in zero waste initiatives. Students can participate in campus clean-up campaigns, create their own waste reduction projects, and organise events to promote environmental initiatives among the university community.

Reduced disposal costs. The implementation of zero waste strategies can also lead to a cost reduction of waste disposal and waste treatment. This allows the universities not only to contribute to the preservation of the environment, but also to save financial resources.

Waste management and reducing environmental impact is an important step in the sustainable development of universities. The introduction of separate waste collection, the use of digital solutions to reduce the use of paper and plastic, and "zero waste" concept contribute to a significant reduction in the environmental footprint of universities. This comprehensive approach not only improves the environmental situation on campus, but also fosters a responsible attitude towards the environment among university students and staff and encourages them to participate in global sustainability initiatives.

4.3. Climate change policy and adaptation measures

In the context of war, post-war recovery and limited financial resources, university climate change policies should be based on practical, low-cost, step-by-step solutions that focus on maximum impact with minimum resources.

4.3.1. Development of measures to reduce greenhouse gas emissions

Basic emissions monitoring. Even with limited funding, universities can implement simplified

methods of emissions assessment, such as energy metering for buildings and transport. This will help identify the main sources of emissions and focus efforts on optimising them.

Minimal energy efficiency measures. Low-budget initiatives such as insulating windows and doors, switching to LED lighting, installing timers or motion sensors can significantly reduce energy consumption.

Gradual transition to renewable energy sources. If possible, universities can start with pilot projects: installing one or two solar panels, especially in critical areas such as lighting shelters, academic buildings or server rooms. For this purpose, assistance from international donors or grant programmes can be sought.

Restrictions on the use of transport. It is recommended to encourage employees and students to use shared transport (carpooling), as well as to switch to walking or cycling within the campus.

4.3.2. Support for environmentally friendly transport (within reach)

Pedestrian and cycling traffic. In the absence of funds for infrastructure projects, it is worth focusing on safe pedestrian access, bicycle storage, and marking bicycle routes.

Programmes to encourage walking. Creating comfortable walking routes around the university. Restricting car access to certain areas can encourage walking and reduce overall emissions.

Cycling promotion. Providing bicycle lanes and bicycle rental for students and staff are among the most effective ways to reduce emissions from transport on campus.

Use of existing vehicles with low fuel consumption. The university can review the routes of company vehicles to reduce mileage and fuel consumption. Alternatively, it could encourage carpooling.

Cooperation with municipal authorities. It is worth establishing cooperation with local authorities to gain access to public transport for students and staff or to jointly make environmental decisions.

4.3.3. Educational activities on climate change adaptation

Courses and programmes on climate change. Universities should develop training courses that address climate change, adaptation measures and environmental strategies. This can be part of the general training programme for students of all specialities, as well as for university staff.

Even without additional funding, the university can integrate climate change into existing courses (economics, ecology, management, technical disciplines).

Conducting research on adaptation. Universities should encourage research related to climate change adaptation, including research in agriculture, water resources, energy and health.

Environmental education and practical activities. Along with training courses, universities can organise practical events, such as environmental campaigns, seminars, and workshops, where students and staff will gain knowledge on climate change adaptation based on real-life projects.

Information campaigns and self-study. Holding information events (reports, online meetings, awareness days) does not require huge resources, but it does raise environmental awareness among students and teachers.

Practical eco-projects on a volunteer basis. For example, students can participate in the restoration of green areas, clean-ups, or the

creation of mobile applications for climate change monitoring.

Partnerships with governments and international organisations. Universities can join efforts with other educational establishments and NGOs to create joint educational products on climate change adaptation that can be made available online.

4.4. Environmental education and awareness raising

In the context of martial law, post-war recovery and limited resources, environmental education is even more important as a component of building a sustainable, conscious and responsible academic community. It helps minimise environmental impact, conserve resources, and prepares young people to actively participate in the country's recovery based on sustainable development.

4.4.1. Introducing environmental science courses into curricula

Integration of environmental topics into all areas of education. The introduction of environmental disciplines into university curricula is one of the main ways to raise environmental awareness. These can be separate courses as well as the integration of environmental topics into other disciplines (e.g. economics, engineering, sociology, art), without requiring significant additional funding or staff changes. Thus, the students understand the importance of sustainable development in various spheres of life.

Use of open learning resources. Thanks to open online learning platforms and e-libraries, universities can include relevant environmental materials in the educational process free of charge.

Interdisciplinary approach. Even with minimal resources, it is possible to create joint thematic blocks with a focus on environmental safety, energy efficiency, and climate change adaptation in the context of post-war recovery.

Practical orientation of environmental education. Project work and volunteering. Students can get involved in practical initiatives within the campus or community: cleaning, landscaping, waste sorting, which do not require large expenditures but form practical eco-habits.

Cooperation with local communities. The use of real-life local cases, such as environmental restoration, waste management, and water conservation enables to combine theory with practice.

Incorporating environmental issues into coursework and diploma projects. This allows students to investigate local environmental issues and propose solutions at no additional cost for the university.

4.4.2. Arranging trainings and seminars (low-cost approach)

Raising awareness among university students and staff. Trainings, seminars and workshops on environmental issues should be regularly organised for students and staff . These can include both general lectures on sustainable development and climate change as well as specialised trainings on environmental practices (e.g. composting, energy efficiency, waste management).

Online format of events. Holding webinars, online seminars and workshops (even in the format of internal Zoom meetings) enables to reach a large audience without the cost of premises or transport.

Environmental awareness weeks. Universities can organise week-long online or offline events with lectures, video screenings and discussions involving local activists, academics, or alumni.

Environmental counselling. The introduction of services for students and staff that help them implement sustainable practices in their daily lives (e.g., how to reduce emissions, how to use resources wisely at home and at work) will strengthen the environmental culture at the university.

Exchange of experience between universities. Joint events with other educational establishments (even online) can reduce costs and enrich content.

4.4.3. Conducting environmental initiatives and campaigns at minimal cost

Environmental awareness days with volunteer participation. Organising environmental awareness days where students and staff can participate in various activities, such as cleaning the university territory, planting trees, collecting recyclables, or promoting healthy lifestyles, waste reduction and energy saving.

Environmental competitions and projects. Creating programmes for students that will promote the development of innovative environmental solutions. These can be competitions for the best environmental projects or start-ups aimed at solving environmental problems which will help develop creative ideas among young people. Even simple ideas such as creating information posters, mobile applications and sorting guides can be implemented by students without significant investment and can become the basis for further innovations.

Media campaigns. Conducting campaigns through social networks, university newspapers, and websites to disseminate information about environmental issues and opportunities for sustainable development, and to encourage students and staff to participate in environmental initiatives.

Creating pages, series of posts, videos and infographics with tips on sustainable lifestyles is an affordable tool for promoting sustainable practices among young people.

Joint initiatives with local communities. Organising joint activities with local environmental organisations, schools, and businesses to improve the environmental situation in the region and develop sustainable practices in the community. Joining efforts with local or international environmental initiatives enables to receive methodological support, volunteer assistance or even microfinance.

Even in times of war and reconstruction, it is possible to effectively raise environmental awareness at low cost through integration into curricula, project work, online formats, and partnerships. This creates environmentally responsible young people who can play a key role in building a sustainable post-war Ukraine.

5. SOCIAL COMPONENT OF UNIVERSITY SUSTAINABLE DEVELOPMENT MANAGEMENT

The social component is an important part of the university's sustainable development management. It includes measures that promote an inclusive, fair and equal environment for all members of the university community. Important aspects include equality, gender policy and accessibility for disabled people, which in general contribute to the development of the university as a socially responsible institution.

In the context of martial law and post-war recovery, limited resources and transformation of the learning environment, the social component of sustainable development management at the university is of particular importance. Creating an inclusive, fair and safe environment becomes not only a matter of ethics, but also a prerequisite for preserving human potential, academic sustainability and future development of the country.

5.1. Equality, inclusiveness and gender policy

5.1.1. Ensuring equal access to education for all social groups

The university should create conditions for access to education for students from different social, economic and cultural groups, with support for students from the affected regions, internally displaced persons (IDPs), veterans, disabled people and low-income people. This can include providing scholarships and financial aid for students from low-income families, developing training programmes for people with low level of education, creating short-term learning modules to retrain people who lost their jobs due to the war, and providing access to online courses for students who cannot attend university classes for whatever reason.

Initiatives for students with special needs. Programmes that promote the involvement of students with different social needs (e.g., students with financial difficulties or from disadvantaged backgrounds) by providing them with additional opportunities for learning and development.

5.1.2. Implementation of gender equality principles

In times of crisis, the university is obliged to protect the rights of all groups, regardless of gender, with particular attention to:

Inclusive gender policy. The university should be active in creating conditions to ensure equal rights and opportunities for all genders. This includes conducting gender trainings, educating students and staff about the importance of gender equality, and taking measures to combat gender discrimination.

Support for women in science and technology. The university can develop special programmes to support women who are interested in science, technology, engineering and mathematics (STEM fields). This can include scholarships, mentoring programmes and conferences to support women's leadership in science.

Ensuring equal opportunities for career development. The University can actively support gender equality in the career development of employees by encouraging the promotion of women and men to senior positions without discrimination.

5.1.3. Creating conditions for disabled people (accessibility of infrastructure, inclusive programmes)

Adaptation of university infrastructure. Ensuring that university facilities are accessible to students and staff with disabilities is an important step in creating an inclusive environment. This includes equipping classrooms, libraries, toilets and other facilities for disabled people as well as creating convenient entrances, ramps and lifts.

With a limited budget, inclusion is implemented through digital accessibility of learning platforms (subtitles, screen readers, adapted formats); gradual modernisation of infrastructure within available resources; and cooperation with NGOs and donors to provide technical support for students with special needs.

5.1.4. Support for social initiatives and volunteering

Social responsibility initiatives. The University can actively support student volunteer initiatives aimed at helping the poor, disabled people, the military, displaced persons, affected communities, as well as the development of environmental or social projects. This can include organising charity events, fundraisers, or providing assistance to NGOs.

The university can coordinate these activities through digital platforms for volunteering; initiatives to support mental health; and resource sharing with communities and charities.

5.2. Health and well-being of students and staff

Supporting health and well-being is an important part of the university's social responsibility, as healthy and satisfied members of the university community are able to achieve high results in studies, work and research through initiatives aimed at improving the physical, mental health and general well-being of university students and staff.

Strengthening the physical and mental health of the university community is crucial in the context of war and post-war recovery.

Psychological support. The mental health of students and staff affected by the war should be a priority. The university can establish psychological support systems for students and staff. This can include consultations with psychologists, psychotherapists, stress management trainings, and the development of emotional resilience skills. Separate support programmes can be aimed at preventing burnout among students and staff.

Medical services and prevention programmes. Opening medical offices on campus or entering into agreements with medical institutions to provide basic medical services to students and staff. This can also include preventive health check-ups and vaccinations.

Mental health support. Creating special programmes to combat depression, anxiety disorders and other mental health issues through courses and sessions aimed at reducing stress and anxiety.

5.2.1. Promoting healthy lifestyle (sports, healthy food)

Sports programmes and activities. The university should provide access to sports facilities and organise regular sports activities for students and staff. This can include individual training and team sports as well as organising sports tournaments, marathons or other events to promote a healthy lifestyle.

Healthy eating and cafes on campus. It is important to provide access to healthy food and beverages on campus. The university can support initiatives to develop menus with a focus on healthy eating, organise events to promote healthy eating among students and staff, and launch nutrition awareness campaigns.

Health awareness. Arranging lectures, seminars and trainings for university students and staff on healthy lifestyles, proper nutrition, physical activity, stress management, etc.

With limited resources, the university arranges online fitness, yoga sessions, webinars on healthy eating; creates simple and accessible initiatives for local physical activity; and engages in partnerships with community and sports initiatives.

5.2.2. Creating safe learning and working environment

Ensuring security on the university territory. The university should actively work on campus security providing security guards, illuminated areas and monitoring of potentially dangerous situations. It is also important to provide trainings on personal safety.

Combating violence and discrimination. Implementing zero-tolerance policies for any form of violence, harassment or discrimination on campus. This can include establishing hotlines for reporting incidents of violence, organising trainings and awareness-raising events for students and staff.

Adaptation of space for disabled people. Providing a safe and comfortable environment for students and employees with disabilities. This includes accessibility of buildings, sanitary facilities, lifts and other infrastructure elements.

5.2.3. Programmes to support employee well-being

Flexible working conditions. Implementation of flexible working conditions for university employees, including the ability to work remotely, flexible working hours for parents, and support in case of childcare or other relative care.

Corporate events and team building. Arranging team events for employees that promote team cohesion, trust development and moral climate improvement in the team.

Professional development support. Programmes to improve the skills and career development of employees that support their motivation and professional well-being.

Ensuring the physical and mental health of students and staff, promoting healthy lifestyles and creating a safe environment contribute to the overall well-being of the university community. All of these activities help create a university that is inclusive, healthy and supportive for every member of the community.

5.3. Community cooperation and partnership with local authorities

5.3.1. Main areas of cooperation

The university's involvement in the local community and cooperation with local authorities are important aspects of sustainable development. Interaction with the community contributes to the exchange of knowledge, the development of the region and the implementation of joint social and environmental initiatives. The university should act not only as an educational centre, but also as an active participant in public life.

Involvement of students in volunteer and community initiatives. The university should create conditions for students to actively participate in community projects and volunteer initiatives that promote sustainable development and social cohesion.

Main directions:

Volunteer programmes:

- Students' participation in environmental campaigns, such as

cleaning up the territories, planting trees, and caring for public spaces.

- Assistance to socially vulnerable groups (elderly people, disabled people, orphans).
- Organising events in support of charitable initiatives, fundraising events (collecting clothes, books, food, etc.).

Student clubs and organisations:

- Support for initiative student groups working on social, environmental and cultural projects.
- Conducting training sessions and seminars for volunteers on effective community engagement.

Learning through community service (servicelearning):

- Integration of community projects into the training programmes to provide students with practical skills in the social sector.

Cooperation with local authorities for region development. The university should develop partnerships with local authorities, contributing to the implementation of sustainable development programmes in the region and attracting academic potential to solve urgent community problems.

Key areas of cooperation:

Participation in the development and implementation of local sustainable development strategies:

- Providing expert advice on environmental policy, energy efficiency and social inclusion.
- Joint development of innovative projects to improve energy efficiency and the state of the environmental in the city/region.

Joint social and economic initiatives:

- Implementation of joint projects aimed at creating new jobs for university graduates.
- Participation in training programmes for employees of local enterprises and institutions.

Sharing information and raising awareness:

- Arranging open forums and discussions on topical issues of sustainable development in the city and the region.
- Introducing training programmes for local government representatives.

5.3.2. Holding open events for community (lectures, eco-forums)

One of the key areas of the university's activity is educational activities, which help raise public awareness of sustainable development issues.

Main events:

Arranging open lectures and discussions:

- Meetings with environmental, economic and social policy experts.
- Public discussions of current challenges related to community sustainable development.

Eco-forums and conferences:

- Engaging scientists, students, business representatives and local authorities to discuss environmental issues, climate change and energy efficiency.
- Arranging exhibitions of innovative environmental technologies and projects.

Cultural and educational events:

- Holding festivals, sustainability fairs, interactive workshops and trainings for children and adults.

- Cooperation with local schools to share environmental knowledge among young people.

Community involvement and partnership with local authorities allows the university to fulfil its social mission, contribute to the sustainable development of the region and foster active citizenship among students. Close interaction between the university and the community helps achieve positive changes in the social, economic and environmental spheres.

5.4. Academic integrity and ethical behaviour

As a centre of knowledge and social development, the university is obliged to adhere to high standards of academic integrity and ethical behaviour. This helps build trust, develop honesty among students and teachers and ensures the quality of education and research.

5.4.1. Implementation of university code of ethics

To create an ethical environment, the university should:

- *Develop and adopt a Code of Ethics* that determines the basic principles of behaviour for all members of the university community (students, teachers, administrative staff).

- *Identify mechanisms for monitoring the compliance with ethical standards,* including disciplinary measures for violations of academic integrity.

- *Establish an ethics committee* to review cases of integrity violations and provide recommendations for their elimination.

- *Ensure that new students and employees are familiar with the Code of Ethics* through introductory lectures, trainings and information materials.

5.4.2. Promoting transparency and honesty in the educational process

To ensure openness and fairness in the educational process, the university should:

Introduce mechanisms to prevent plagiarism, in particular:

- Using software to check academic papers for plagiarism.

- Providing students with access to resources and learning materials on proper citation and copyright.

Conduct regular monitoring of academic performance, using independent tools to assess knowledge and competence.

Ensure the integrity of the assessment by implementing:

- transparent assessment criteria available to students at the beginning of the training course;
- appeal procedures for reviewing assessments in case of doubts about objectivity.

Develop a culture of academic responsibility by encouraging teachers and students to exercise self-control and mutual assistance in maintaining integrity.

5.4.3. Building a culture of integrity among students and teachers

Creating an atmosphere of mutual respect, honesty and responsibility is a key task of the university.

To do this, it is necessary to:

Arrange trainings and seminars on academic integrity covering the following topics:

- ethical aspects of research;
- preventing corruption in the educational process;
- academic responsibility and consequences of violations.

Establish a mentoring system where teachers and senior students help freshmen learn the principles of integrity.

Encourage student initiatives aimed at promoting ethical behaviour (e.g. arranging information campaigns, debates, competitions on ethical topics).

Provide anonymous reporting channels that allow students and staff to report cases of academic integrity violations without risk of retaliation.

Adherence to the principles of academic integrity and ethical behaviour is an important component of the university's sustainable development. Implementing the code of ethics, ensuring transparency of the educational process and building a culture of integrity will help strengthen the university's reputation and train responsible professionals for the society.

6. EDUCATIONAL ACTIVITIES AND RESEARCH

6.1. Integrating sustainability principles into curricula

Universities have a huge potential to create awareness of sustainable development among students, as the educational process is the main channel for transferring knowledge and educating responsible citizens. The integration of sustainable development principles into curricula will not only help prepare future professionals for changes, but also contribute to the development of the society as a whole. In the context of martial law and limited resources, the integration of sustainable development principles into curricula is of strategic importance. Education should form a new generation of professionals capable of restoring, adapting and transforming the society under the conditions of uncertainty and crisis.

6.1.1. Development of specialised courses on sustainable development

Introduction of new disciplines. The university can develop separate courses focusing on sustainability, ecology, economics, social responsibility and technologies for a sustainable future.

Interdisciplinary courses. Joint development of courses between faculties so that students can gain comprehensive knowledge of the interconnectedness of ecology, economics and social aspects of sustainable development.

Practical orientation. Coursework, projects, and research focused on real-world sustainability cases can be part of the curricula to help students develop practical skills.

6.1.2. Integrating environmental aspects into all academic disciplines

Integrating sustainable practices into all courses. Universities can integrate sustainability into all academic disciplines, from economics to engineering, humanities and social sciences. For example, economics students could study green economy concepts, while technical students could study energy-saving technologies.

Involvement of professors and experts in the field of sustainable development. To better integrate these aspects into the curricula, it is necessary to invite professors with experience in the field of ecology and sustainable development as well as to involve practitioners.

Cross-curricular projects. Developing interdisciplinary projects that bring together students from different specialities to solve real-world sustainability problems (e.g., developing innovative environmental solutions for business or the local community).

6.1.3. Learning modules with practical application of sustainable solutions

Practical projects and internships. Students can participate in projects related to sustainable development, such as energy conservation, waste management, green energy or sustainable business development. This will allow them not only to master the material

theoretically, but also to apply their knowledge in practice.

Partnerships with organisations and businesses. The university can establish partnerships with companies and organisations involved in sustainable development to provide students with opportunities for practical training, internships, or joint projects.

Innovative laboratories and workshops. Creating special laboratories where students can work on developing innovative sustainable solutions, such as new technologies in the field of energy, water treatment or sustainable agriculture.

6.2. Research in the field of sustainable development

Sustainability research is crucial for developing innovations and effective solutions that will help address global challenges, including climate change, environmental pollution, resource reduction, social inequality and other important issues. Universities have the opportunity to become active participants of these changes through research and technological development.

6.2.1. Involvement of teachers and students in research projects

Establishment of research groups and laboratories. Establishing specialised research groups and laboratories working on sustainable development issues, such as energy saving, environmental technologies, renewable energy, waste management, etc.

Interdisciplinary research. Encouraging cooperation between different faculties to conduct integrated research covering economic, environmental and social aspects of sustainable development.

Projects for students. Involving students in research projects which will give them the opportunity to gain practical skills in the field of sustainable development and find innovative solutions to modern challenges.

6.2.2. Publication of research aimed at solving environmental problems

Scientific journals and conferences. Arranging or participating in science conferences, symposia and publishing research results in specialised scientific journals on sustainable development and environmental issues.

Coverage of innovative solutions. Publication of research results on the latest technologies in the field of energy efficiency, green economy, renewable energy sources, climate change, etc.

International publications. Dissemination of research results at the international level to ensure wider implementation of scientific achievements in the field of sustainable development.

6.2.3. Cooperation with business and government agencies in scientific progress

Partnerships with companies. Universities can cooperate with the private sector to develop innovative solutions that contribute to sustainable development. For example, companies can work together with universities to develop new environmental technologies, waste management strategies or efficient energy saving models.

Cooperation with government agencies. Involving government authorities in the development of policies that promote sustainable development as well as support for initiatives that imply the use of research results to solve national problems.

Funding projects from business and government. Participation in grant programmes and funded projects provided by

governments or large corporations to support research in the field of sustainable development.

6.3. Professional development of teachers and staff

The effective implementation of sustainable development principles at the university depends not only on students, but also on the training of teachers and administrative staff. To ensure a high level of education and management processes, it is necessary to constantly update the knowledge and skills of teachers and staff in the field of sustainable development.

6.3.1. Arrangement of trainings and advanced training courses

Training topics. Courses can cover various aspects of sustainable development, including environmental responsibility, energy efficiency, social innovation and sustainable project management. Particular attention should be paid to introducing methods for integrating sustainability into curricula and administrative processes.

Teaching methods. The use of innovative teaching approaches, such as online courses, webinars, simulations of real-life situations, practical classes and case studies. This will ensure access to training materials for all university employees regardless of their location.

Learning through experience. Arranging practical seminars and workshops where teachers and administrative staff can gain experience in solving real-world sustainability problems, such as reducing CO2 emissions, rational use of resources, etc.

6.3.2. Implementation of curricula on sustainable management for administrative staff

Programmes for administrative staff. To effectively manage a university's sustainability, it is important that administrative staff have specialised knowledge on the topic. Programmes can cover areas such as sustainable resource management, energy planning, environmental legislation and community responsibility.

Training for top management. Introducing topics related to strategic sustainability planning, setting goals and performance indicators (KPIs), change management. This will help administrative staff effectively integrate sustainability into university activities ensuring a comprehensive approach to sustainable management.

Integrating sustainable development into all aspects of management. Training should include methods for integrating sustainable development into various aspects of administrative work, such as financial management, infrastructure development, and communication with other stakeholders.

6.3.3. Assessment and monitoring of learning outcomes

Progress monitoring. After completing trainings and courses, it is necessary to evaluate the effectiveness of training using feedback questionnaires, testing or practical projects.

Adaptation of the programme. Based on the results obtained, the curricula should be adjusted to cover relevant topics more effectively and to ensure the greatest results for the university.

7. MANAGING UNIVERSITY SUSTAINABLE DEVELOPMENT THROUGH COMMUNICATION AND INFORMATION DISTRIBUTION

7.1. Internal communication on the implementation of sustainability initiatives

Effective internal communication is an important component of the successful implementation of sustainability initiatives at a university. It helps ensure a high level of awareness among university students, teachers and administration about the importance of sustainable practices and their contribution to the development of the university. Under the conditions of martial law, partial destruction of infrastructure, displacement of students and teachers to safer regions or abroad, communication is a critical tool for managing, uniting the academic community and ensuring the continuity of the educational process. Establishing effective internal communication channels and introducing sustainable development into the agenda at all levels of university management is a key element in achieving sustainable development goals. This ensures transparency, accountability and involvement of all participants of the educational process in the implementation of important environmental and social initiatives.

7.1.1. Internal information channels

- *Newsletters* - regular email newsletters for employees, students and teachers with relevant news, initiatives and achievements in the field of sustainable development.
- *Internal portals and platforms* - specialised platforms or sections on university websites where information on sustainability policies, training courses, events, research and project opportunities will be available. It enables to create a centralised database for all stakeholders.
- *information stands and posters* on the university territory.

7.1.2. Sustainability issues on the agenda of the meetings

Meetings at the top management level. Regular discussions of sustainability issues at strategic meetings of the university top management allow important decisions to be made with environmental and social aspects in mind.

Integration of sustainable development into scientific and educational meetings. Introducing sustainable development as an important topic at the meetings of faculties, departments and scientific committees. Discussions of innovative approaches to integrating sustainable practices into curricula and research.

Meetings of student organisations. Active involvement of students in discussions on sustainable development, arranging meetings and forums for joint exchange of ideas, proposals and plans helps create a sense of shared responsibility among all members of the university community.

7.1.3. Regular feedback

Surveys and questionnaires. To ensure that sustainability information reaches everyone, regular surveys can be conducted among

university students and staff. This will enable to get feedback and assess how effectively they are implementing the initiatives.

A forum for ideas and suggestions. Creating an online forum or a special platform where all university participants can share their ideas on sustainability and offer solutions to improve the existing initiatives.

7.1.4. Using digital tools for communication

Mobile applications. Developing university mobile applications which can include sections on sustainability, information on events and initiatives, and integrated functions for participation in such events.

Social media. Using university accounts on social media to disseminate information about sustainability. This can include posts, videos, and other formats that will attract more students and young professionals to actively participate in projects.

7.2. Dissemination of information among students and staff

Effective dissemination of information about sustainability among students and employees not only helps spread knowledge about sustainability principles, but also promote a common culture of responsibility and environmental awareness.

7.2.1. Delivering lectures and seminars

Lectures and workshops on sustainable development. Regular lectures and seminars where university students and staff can receive up-to-date information on sustainable development, energy saving, environmental initiatives, and the importance of integrating sustainability principles into everyday life.

Guest lectures from experts and practitioners. Inviting well-known experts, environmentalists, representatives of international organisations or businesses to deliver lectures and seminars on sustainable development is an opportunity to learn about real-life examples and practical solutions.

Trainings and workshops. Arranging trainings where participants can gain practical skills in implementing sustainable solutions in their professional activities or everyday life.

7.2.2. Using social networks to promote sustainable development

Active management of university accounts in social media. The use of platforms such as Facebook, Instagram, Twitter to disseminate information about sustainable development can include news about eco-initiatives, interviews with experts, interesting facts, infographics and posts about the university's achievements in the field of environmental and social sustainability.

Interactive online campaigns. Arranging environmental challenges, online campaigns or social media events to encourage students and staff to participate in activities such as volunteering, greening initiatives, recycling or sustainable lifestyles.

Video content and webinars. Publishing videos of lectures, seminars or environmental campaigns. These can be recordings of events or short videos about sustainable development that can be easily shared with university students and staff through social networks.

Hashtags and flash mobs. Using hashtags to disseminate information and engaging a wide audience in specific initiatives. For example, hashtags such as #SustainableCampus, #GreenUniversity or #EcoFriendlyStudents can become a powerful tool for spreading environmental initiatives among students.

7.2.3. Dissemination of informative materials

Posters, booklets and leaflets. Distribution of materials that raise environmental awareness among university students and staff. These can be both printed materials and electronic versions.

Infographics and reports. Regular publication of infographics that explain the university's sustainability achievements in a concise and accessible way or offer instructions on specific actions to save resources.

7.2.4. Mobile applications and platforms

University mobile applications. Creating a university application or a special section in the existing application that contains information about sustainability, environmental initiatives, and opportunities to participate in projects.

Digital platforms for participation. Websites or online tools that allow students and staff to register for environmental events, initiatives and actions, and to monitor the university's sustainability progress.

7.3. Public reporting and PR strategy

Public reporting and the university's PR strategy are important components that promote transparency, improve trust among stakeholders and maintain the university's reputation as a socially responsible institution. Due to effective communications, the university can demonstrate its sustainability efforts and attract more support from the community, partners and potential students.

7.3.1. Annual publication of reports on sustainability achievements

Reports based on international standards. Publication of sustainability reports based on international standards, such as Global Sustainable Development Goals (SDGs) or ESG (Environmental, Social, Governance) principles. This enables to show how the university achieves sustainable results in its educational, research and administrative processes.

Transparency in achievements and challenges. It is important not only to publish successes, but also to transparently describe the challenges faced by the university and the steps planned to overcome them. This can include the information on energy efficiency, carbon footprint reduction, waste management and social initiatives.

Using infographics and figures. To make information easier to comprehend, infographics clearly demonstrating the progress and achievements in the field of sustainable development can be used. For example, graphs with CO_2 emissions, energy use, or the number of students involved in eco-initiatives.

Publishing research and innovation results. An important element of the reports is the publication of research and developments aimed at sustainable development. This includes research projects and results that have an impact on the environment, society, or the economy.

7.3.2. Preparing information campaigns for community and partners

Local initiatives. Developing campaigns that engage the local community in sustainable development initiatives, such as greening the territory, cleaning rivers, volunteer projects, etc. Dissemination of information through local media, social networks, and participation in events improves the status of the university as an active member of the community.

Partnerships with business. Arranging joint campaigns with business partners to promote sustainable practices and innovations, events in support of green technologies, and promotion of environmentally friendly goods or services.

Media and social networks campaigns. Preparing specialised PR campaigns to engage the media in covering the university's sustainability initiatives. This can include interviews with university leaders, publications in local newspapers or on national platforms, and an active presence in social media.

Initiatives for partners. The development of special informative events for university partners, such as arranging round tables, conferences or webinars, where the results of the university's sustainable development initiatives will be presented. This enables to strengthen the cooperation with other educational establishments, businesses, government and international organisations.

7.3.3. Involving students in content creation

Student initiatives in PR. Students can be involved in creating the content for the university's social networks. This can include photos, videos, blogs about participation in sustainable initiatives, environmental campaigns, and volunteer projects.

Competitions and campaigns among students. Creating competitions for the best environmental project, video or essay which will be widely distributed among the university community, partners and potential students.

7.3.4. Evaluating the effectiveness of PR strategy

Audience analysis. It is important to regularly monitor the effectiveness of information campaigns, using analytics tools to assess how many people have learned about the university's initiatives and what kind of reaction they evoke.

Reputation assessment. Conducting regular surveys among university students, teachers and staff, community and partners about their attitudes towards sustainability initiatives and the university's reputation in this area.

Public reporting and an effective PR strategy are important tools for a university striving for sustainable development. This helps improve transparency, engage partners and the community in the university's initiatives and strengthen its reputation as a socially responsible educational establishment.

8. MONITORING AND EVALUATING THE EFFECTIVENESS OF UNIVERSITY SUSTAINABLE DEVELOPMENT

8.1. System of coefficients and key performance indicators (KPIs)

Monitoring and performance evaluation are components of implementing the university's sustainability policy. They help assess the achievement of the set goals and identify areas for improvement. For this purpose, clear mechanisms and approaches are developed, including key performance indicators (KPIs) that reflect success in various areas of sustainable development.

To monitor the results, the university uses indicators that enable to objectively assess the achievements of sustainable development in economic, environmental, social and educational spheres.

Economic indicators:

- *Share of the budget allocated to sustainable development (%).* It is also the share of the total budget allocated to sustainable development initiatives and projects. This includes investments in energy efficiency, environmental technologies and social projects.
- *Amount of grants and investments in sustainable development projects (UAH).* It measures the amount of funds raised to finance projects aimed at sustainable development of the university.
- *Saving resources (energy, water, materials) in percentage*. It measures the reduction of energy, water and material costs due to optimisation processes and the introduction of sustainable technologies.

Environmental indicators:

- *Carbon footprint of the university (tonnes of CO_2).* It estimates the total greenhouse gas emissions of the university, which enables to monitor the progress in reducing carbon emissions.
- *Volume of disposed and recycled waste (kg/year).* It shows the amount of waste that has been disposed of or recycled, which is an effectiveness indicator of the university's environmental practices.
- *Share of renewable energy sources (%).* It determines what percentage of energy the university receives from renewable sources, which demonstrates the level of environmental sustainability.
- *Water consumption per student/employee (l/day).* It assesses the efficiency of water use by the university and helps determine the potential for reducing water consumption.

Social indicators:

- *Level of student and staff satisfaction with the conditions of study and work (%).* It measures the extent to which students and staff are satisfied with the conditions created by the university for studies and work, including sustainable development aspects.
- *Share of inclusive initiatives in the curricula.* It determines the extent to which the university's curricula take

into account principles of inclusiveness and equal opportunities for all groups of students.

- *Number of social projects implemented with the university participation.* It measures the number of projects with social impact that the university has initiated or supported.

Educational indicators:

- *Share of curricula with sustainability components (%).* It determines the percentage of curricula that include courses or modules on sustainable development, ecology and social responsibility.

- *Number of research projects aimed at addressing sustainable development issues.* It assesses the university's activity in research aimed at solving sustainable development problems.

- *Level of students' awareness of environmental issues (based on surveys).* Through surveys and questionnaires it assesses the level of students' awareness and understanding of sustainability, ecology and the importance of conserving natural resources.

8.2. Monitoring and data collection methods

To ensure effective monitoring and data collection as part of the implementation of the university's sustainability policy, various approaches and tools are used. This enables not only to assess current results, but also to take further actions to achieve sustainable development goals.

Surveys and questionnaires. Regular surveys among students, teachers and staff are one of the main methods to evaluate:

- *satisfaction* with learning and working conditions, including environmental and social aspects;

- - *inclusiveness* of university initiatives and programmes as well as access to learning resources;

- *awareness* among students and employees of the importance of sustainable development, environmental practices, and social responsibility.

This method enables to get direct feedback and identify possible weaknesses in implementing sustainable development.

Audit of resources. To monitor the efficiency of resource use, the university regularly conducts:

- *energy audit* as an assessment of energy consumption, identification of opportunities to reduce energy consumption and implementation of energy-efficient solutions;

- *water audit* providing an analysis of water consumption and identifying ways to optimise the use of water resources;

- *material audit* assessing the use of material resources, such as paper, building materials, equipment in order to reduce waste and use them efficiently.

These audits help collect data for further analysis and development of effective measures to save resources.

Collection of statistical data. Regular collection of statistical data enables to assess the environmental impact of the university, in particular:

- *CO_2 emissions.* Monitoring greenhouse gas emissions helps assess the

university's carbon footprint and track the progress in reducing emissions.

- *Energy and water costs.* Collecting data on energy and water consumption helps determine the effectiveness of measures to reduce costs and support sustainable resource use.
- *Recycled waste.* Collecting statistics on the amount of waste to be disposed of or recycled enables to assess the effectiveness of the university's waste management policy.

This process enables to systematically monitor changes in environmental performance.

Reporting and analysis. Annual reporting and regular analysis of the results is an important stage of monitoring:

- *Annual reports.* Publication of the reports allows the community, students, teachers and external partners to get acquainted with the university's achievements in the field of sustainable development, in particular in the environmental, economic and social spheres.
- *Regular performance analysis.* Evaluation of monitoring results and data to identify gaps in the measures implemented and adjust strategies and initiatives to achieve better results.

This approach ensures continuous evaluation and improvement of the university's sustainability policy as well as improves transparency and accountability in the implementation processes.

The combination of different monitoring and data collection methods provides a comprehensive approach to managing the university's sustainable development enabling to effectively monitor progress, adjust strategies and achieve sustainability goals.

8.3. Internal and external audits

Auditing is an important tool to verify that sustainability strategies are achieving their intended results and to identify potential problems and opportunities for improvement.

Internal audit:

- regular internal audits and evaluation of the effectiveness of sustainability activities;
- assessment of financial statements, use of resources, budget compliance with sustainable development;
- analysis of the university's activities in environmental, social and educational areas;
- collecting and analysing feedback from students, teachers and staff to identify problematic aspects.

External audit:

- engaging independent consultants and experts to evaluate the initiatives implemented;
- assessment of the university according to international or national environmental certifications and standards (for example, ISO 14001);
- cooperation with government agencies and other external partners to analyse the success of the university's sustainable development;
- regular publication of external sustainability reports to ensure transparency.

8.4. Corrective and preventive measures

Based on the results of monitoring and audit, corrective and preventive measures can be taken to ensure that the sustainability goals are achieved.

Corrective actions. If the assessment results show that certain strategies or initiatives are not achieving the desired results, the university should take corrective actions to address the shortcomings, namely:

- reviewing policies, plans and resources to ensure more efficient use of resources;
- adjustments for the curricula, in particular to raise students' awareness of sustainable development.

Preventive actions:

- assessment of potential risks and problem areas that may arise in the future (e.g. changes in legislation, new environmental requirements);
- developing strategies to prevent potential negative impacts on sustainable development (e.g., implementing a waste management system before the volume of waste increases);
- establishing an early warning system to identify inefficient or environmentally harmful practices.

To ensure the effectiveness and relevance of the university's sustainable development policy, it is necessary to periodically evaluate its results and adjust strategies in accordance with the changes in internal and external environment. This enables not only to maintain a high level of achievements, but also to adapt the university to new challenges and possibilities.

Periodic review of results. Periodic evaluation is an important step in the sustainability management system, which includes:

- *Evaluation of plans implementation* - regular review of the results achieved against the set goals and performance indicators (KPIs). This helps identify which aspects of the policy need to be improved or adjusted.

- *Indicator analysis* is an in-depth analysis of the collected data (economic, environmental, social) to assess the effectiveness of the initiatives implemented. For example, has there been a reduction in CO_2 emissions, have resource savings been achieved, are there any positive changes in student and staff satisfaction?

This stage enables to understand where changes are needed to achieve the goals set.

Strategy adaptation. The evaluation of results and the analysis of indicators are the basis for adjusting the university's sustainability management strategy:

- *Adjustment of strategies and measures.* Based on the data collected and the assessment results, adjustments are made to existing plans and initiatives to ensure that the sustainability goals are achieved. For example, if it turns out that certain measures, such as energy conservation or waste management, have not produced the expected results, new approaches or technologies can be developed to achieve these goals.
- *Adaptation to new challenges.* Changes in the global and local environment, new environmental or

social trends and technological innovations can require adjustments to the university's strategies. The university can update its policies in response to new research, legislative initiatives or emerging environmental issues.

This process helps the university not only respond to changes, but also actively implement sustainable development, ensuring sustainability and effectiveness of its policies.

Evaluating and adjusting the sustainability policy is an important mechanism for ensuring the university's adaptability and effectiveness under the conditions of constant changes. Due to periodical review of the results and strategy adjustment, the university's sustainable development can be ensured by effectively using available resources and responding to emerging challenges.

8.5. Continuous improvement of policy and procedures

Continuous improvement is an important part of any sustainability strategy. It is necessary to regularly analyse the results and adapt the university's policies and procedures to achieve better sustainability results.

Analysis of the results:

- Periodic assessment of progress against key sustainability indicators.
- Analysis of external and internal factors that can affect the university's activities in the context of sustainable development.
- Identification of best practices and their adaptation to the current activities of the university.

Policy adaptation:

- Updating sustainable development policies based on new scientific data, technological advances and social trends.
- Taking into account feedback and recommendations from internal and external auditors and university stakeholders.
- Regular improvement of procedures and strategy based on monitoring and audit results.

Training and development:

- Creating a training system for staff, including regular knowledge updates on new tools and methods for sustainable development.
- Supporting the continuous development of the university's sustainability culture through trainings, seminars and participation in international initiatives.

Improving the university's sustainability management policy is a process that requires constant monitoring, evaluation of results and adjustment of strategies to achieve long-term sustainability. A system of indicators, regular audits, corrective actions and continuous improvement are necessary tools for effective sustainability management at the university.

Appendix 1

Indicators and quantitative measures **based on normative or indicative values** (norms) that enable to objectively assess the sustainability achievements of universities in various fields of their activity. The norms are based on international standards (GRI, STARS, UIGreenMetric, ISO, SDG) and adapted to the capabilities of Ukrainian universities.

Indicators and quantitative measures that enable to objectively assess the sustainability achievements of universities.

1. **Economic sphere**

Indicator	**Quantitative measure**	**Indicative norm / standard**	**Source / Commentary**
Energy efficiency	≤ 120 kWh/m²/year	Up to 100 kWh/m²/year (for energy-efficient buildings)	State Building Codes B.2.6-31:2021, EN 15603
Share of R&D expenditure	≥ 5–10% of the budget	≥5% — minimum for innovative institutions	European Commission
Attracted investments (grants, partnerships)	Growth ≥10% per year	Depends on the development strategy	Horizon Europe, Erasmus+, Tempus
Expenditure on sustainable development measures	≥ 2–3% of the budget	Recommended in ESG reporting	ISO 26000
Green/ethical procurement	≥ 30% of all procurement	≥50% — in the strategies of sustainable institutions	ISO 20400

2. Environmental sphere

Indicator	**Quantitative measure**	**Indicative norm / standard**	**Source / Commentary**
Energy consumption	≤ 120 kWh/m²/year	Up to 100 for new buildings, up to 150 for old buildings	State Building Codes, ISO 50001
Water consumption	≤ 10 m³/student/year	Optimally — 6–8 m³	UI Green Metric, EN ISO 14046
Waste generation	≤ 50 kg/student/year	Optimally - up to 30 kg	GRI 306, Ukrainian regulations
Sorting/recycling level	≥ 50%	The EU target is 65% by 2035	EU Waste Framework Directive
Green areas	≥ 20 m²/student or ≥ 25% of the territory	UIGreenMetric — the more the better	UI GreenMetric
Share of renewable energy sources	≥ 20%	Ukrainian strategy: 25% by 2030	Energy Strategy of Ukraine 2035
CO_2 emissions	≤ 0.5 t/student/year	Target - annual reduction	ISO 14064
Coverage of environmental education	≥ 50% students	Minimum - all bachelors in basic courses	SDG 13, STARS

3. Social sphere

Indicator	Quantitative measure	Indicative norm / standard	Source / Commentary
Student satisfaction	≥ 75% positive responses	Average level for a quality learning environment	National surveys, EUA
Students from vulnerable groups	≥ 10% ensuring equal access	Minimum 5–10%	SDG 10, inclusive policy
Social and volunteer projects	≥ 10/year	Depends on the size of HEI	SDG 17, ESG-Social
Gender balance of teachers	≥ 40% representatives of each gender	The goal is gender parity	GRI 405
Safety on campus	0–2 incidents per 1000 people/year	Risk minimisation	Internal security standards

4. Educational sphere

Indicator	Quantitative measure	Indicative norm / standard	Source / Commentary
Courses on sustainable development	≥ 25% of courses have an integrated component	STARS: ≥25–50% for high level	STARS, SDG 4.7
Students in sustainable development projects	≥ 30%	Active civic engagement	SDG 16, 17
Trainings for teachers	≥ 50% of teachers annually update their training	Professional development is a requirement of the standards	ESG-Education
Interdisciplinary programmes	≥ 5% of all programmes	A benchmark for innovative learning	SDG 4, 13
Publications on sustainable development	≥ 10% of scientific work	Science impact indicator	Scopus, WoS
Courses with open access	≥ 20%	Open resources as part of digital transformation	UNESCO, OER
International partnerships (SDG)	≥ 5 active partnerships	Building global connections	SDG 17, Erasmus+

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Useful links

AcceleratingEducationfortheSDGsinUniversities: A GuideforUniversities, Colleges, andTertiaryandHigherEducationInstitutions

https://www.unsdsn.org/resources/accelerating-education-for-the-sdgs-in-universities-a-guide-for-universities-colleges-and-tertiary-and-higher-education-institutions/?gad_source=1&gclid=CjwKCAiA9bq6BhAKEiwAH6bqoAfXDjUvscbZRs5z0997Xu2uJHcRx7CXdVb0sYpJJ5l_QZuOtusgHRoCt6UQAvD_BwE

UniversitiesandSustainableDevelopmentTowardstheGlobalGoals

https://www.eua.eu/publications/briefings/universities-and-sustainable-development-towards-the-global-goals.html

SustainabilityEvaluationToolforHigherEducationInstitutions (SET4HEI)

https://set4hei.org/self-assessment/

A handbookformonitoringandevaluatingeducationforsustainabledevelopmentinhighereducation

https://www.qaa.ac.uk/membership/collaborative-enhancement-projects/education-for-sustainable-development/monitoring-and-evaluating-education-for-sustainable-development-in-higher-education

SustainabilityGovernanceatHigherEducationInstitutions

https://www.hochn.uni-hamburg.de/-downloads/handlungsfelder/governance/guide-book-sustainability-governance-at-higher-education-institutions-edition-2020.pdf

MethodologicalguideforImplementingSustainableDevelopmentGoals (SDGs) atHigherEducationInstitutions (HEIs)

https://www.upo.es/usd-project/methodological-guide-2/

Educationforsustainabledevelopment

https://www.unesco.org/en/sustainable-development/education

SustainabilityScience

https://www.unesco.org/en/management-social-transformations-most-programme/sustainability

Guidelinesonsustainabilityscienceinresearchandeducation

https://unesdoc.unesco.org/ark:/48223/pf0000260600

A GreenDealroadmapforuniversities

https://www.eua.eu/publications/reports/a-green-deal-roadmap-for-universities.html

SustainableDevelopment

https://www.unesco.org/en/sustainable-development