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## School of Natural Sciences and Health Development Plan 2021-2022

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### I MISSION

1. To create and share knowledge and expertise on natural and health sciences to promote people's wellbeing and behavioural patterns conducive to wellbeing.
2. To provide an inspiring working environment conducive to personal fulfilment to the members of the school.

### II VISION

We explore, formulate and teach about the state of wellbeing of people and their environment, as well as the needs and opportunities for changing it.

### III STRATEGIC GOALS

School of Natural Sciences and Health (SNSH) Development Plan and its objectives are based on the following national strategic documents: Tallinn University Development Plan 2020-2022, the Estonian Education Strategy 2021-2035, Sustainable Estonia 21, the Estonian Environmental Strategy 2030, the National Health Plan 2020-2030, the Welfare Development Plan 2016-2023, strategy "Estonia 2035".

#### 3.1 STRATEGIC GOALS OF THE UNIT AND FOCUS FIELD

Being responsible for the focus field of healthy and sustainable lifestyle, the aim of the School of Natural Sciences and Health is to use its knowledge and skills to:

- 1) **support people's wellbeing and behavioural patterns conducive to wellbeing;**
- 2) **support the formation of social capacity and healthy behaviour;**
- 3) **shape sustainable development thinking.**

The goals of SNSH refer to the specific objectives approved by Annex 1 to the TLU Development Plan 2020-2022.

#### **Research, development, and creativity (RDC) and the impact on society**

Research and development are aimed at increasing cooperation between academic staff, international cooperation, and at initiating and carrying out joint projects (2.1.2.).

We will develop the administrative capacity to apply for and successfully carry out research projects (3.1.1.).

We will strengthen cooperation with private and public sector partners (including increasing the volume of contracts) (4.3.2). We will continue organising professional research seminars and cross-school series of research seminars (2.3.2.).

We will develop the specialised hardware and a set of methods of analysis to contribute to the solution of the main research problems of academic study areas by using a molecular scientific approach (1.4.1.).

We will develop a hardware basis for research in neuropsychology (1.4.1.) to deliver courses on experimental psychology and to carry out research (1.4.1.)

We will develop research areas and methods related to climate change adaptation and mitigation and sustainable development based on the challenges emerging in society (1.4.1).

We will use different forms of communication to inform target groups about research into health, wellbeing and sustainable lifestyle as well as about new knowledge and expertise (1.4.1.)

We will contribute to the development of society based on the principles of sustainable development (4.3.1.).

### **Provision of education**

We will implement modern approach to teaching and learning, and integrate competences related to entrepreneurship, sustainability, mobility and creativity into teaching (1.1.2).

We will promote the teaching profession, mental health, sustainable lifestyle and disseminate results of research (1.1.1.).

We will develop knowledge and competences related to research ethics and professional ethics in training (4.3.3).

We will evaluate cost effectiveness of studies and implement effective solutions in the organisation of studies (4.2.3.).

We will participate in the development of professional standards (including professional standards for teachers) in cooperation with professional associations and the Estonian Qualifications Authority and base the development of studies on these standards (4.2.4.). We will improve the academic staff's skills of using e-learning methods to provide e-courses (4.2.1.).

We will organise sectoral study mobility to students to study or undergo practical training at different European higher education institutions, companies, research or practical training centres or in a similar organisation (3.2.3.).

We will conclude cooperation agreements with various foreign universities to provide students with an opportunity to study two terms as exchange students at a partner university (3.2.2.).

We will develop, in cooperation with the School of Educational Sciences, innovative teaching and learning methods for the provision of both formal and non-formal education (1.1.2.).

We will react flexibly to the expectations and needs of society, following the subject fields of study areas in developing new continuing education programmes, develop flexible learning opportunities that take into account learners' needs (1.4.1.).

We will participate in lifelong learning development projects aimed at the systematic development of continuing education and at increasing training offers (1.4.2.).

### **Management and organisational culture**

To develop study programmes, we will offer in cooperation with the Personnel Office and the School of Educational Sciences continuing education courses to lecturers, and group training and counselling to the main lecturers of study programmes (1.1.1.).

We will plan and develop the working environment by supporting opportunities to employees to interact with other staff and enable to improve speciality-specific and general competences (1.4.2.).

In order to improve academic efficiency, we will improve the staff's knowledge and skills of using IT applications and databases (4.3.4).

We will accept flexible forms of work (remote work, flexible worktime), provided that it does not have a negative effect on the quality of work or on the work of other staff (4.3.4.).

We will provide short-term and long-term mobility opportunities to foster the internationalisation of staff by using the opportunities offered by various funds and cooperation agreements (3.3.1.).

We will support the motivation of staff and opportunities to exercise and participate in joint physical activities (1.4.1.).

We will develop an organisational culture that supports mental health through SNSH events and training programmes (1.4.2.)

We implement the principles of sustainable development in the learning and working environment (1.4.1.).

### **3.2 STRATEGIC GOALS OF STUDY AREAS**

There are four academic study areas at the School of Natural Sciences and Health:

- Movement, Health and Sports Sciences
- Science and Technology Education
- Natural Sciences and Sustainability
- Psychology and Behavioural Sciences

**The main objectives in the educational activities of the study areas of SNSH are:**

#### Movement, Health and Sports Sciences

To focus the study programme of PE teachers on movement studies.

To become the main provider of training aimed at promoting movement, health and capacity for work.

#### Science and Technology Education

To reorganise teaching in the field of technology in order to ensure that it suits those students who are working during their studies and is more cost effective.

To increase the number of courses in teacher education aimed at developing social skills and sustainable development competences.

To implement the best practices of traditional teaching along with the teaching methods that use IT solutions in general education schools and in training aimed at the public by integrating the teaching of natural sciences, technology and crafts.

To develop a modern environment for teaching technology subjects in both formal and continuing education.

#### Natural Sciences and Sustainability

To develop joint modules for Master's degree programmes and allow flexibility for students when they choose subject-specific courses.

To integrate the results of high-level research in the fields of natural sciences and sustainable development into teaching.

To increase the share of courses on topics related to sustainable development in environmental management study programmes and in supervising topics.

To continue the integration of natural sciences into research in health and wellbeing.

#### Psychology and Behavioural Sciences

To increase the share of courses on topics related to neural sciences and experimental psychology in psychology study programmes and in supervising topics.

To continue prioritising the development of the school psychology area.

To carry out interdisciplinary psychology projects in cooperation with other study areas.

To carry out research related to COVID-19 to study wellbeing and mental health issues in the context of the coronavirus pandemic and its aftermath (topics related to psychology, sociology and recreation).

To develop a course on social skills for teacher education in the field of natural sciences.

To involve more international academic staff in teaching English-language Master's degree programmes in the field of wellbeing and to enhance cooperation with partner universities to improve the quality of the study programme.

### **3.3 DEVELOPMENT OF RESEARCH AND LINKING WITH STUDY AREAS**

The School of Natural Sciences and Health includes the Centre of Excellence in Behavioural and Neural Sciences and one research centre, the Institute of Ecology.

#### Institute of Ecology

The Institute of Ecology of SNSH is the successor of the Institute of Ecology established in 1992. The researchers of the Institute of Ecology have successfully focused on studying the functioning and development of mainly water-related ecosystems and making recommendations based on this knowledge for a more sustainable management of natural resources. Our research focuses on water ecosystems such as lakes, rivers, coasts and groundwater. We study the processes in those ecosystems in different time and spatial frames. The Institute of Ecology also contributes actively to the provision of higher education in the field of natural sciences as well as to research in environmental education and communication in cooperation with researchers from other fields.

#### Centre of Excellence in Behavioural and Neural Sciences

The Centre of Excellence in Behavioural and Neural Sciences (KNT in Estonian) was established in order to link the existing research projects of SNSH in the fields of natural, behavioural and social sciences with each other and to create new interdisciplinary research projects that involve the research groups and research expertise of other specialities. By today, the Centre of Excellence has developed two main fields of research – neural sciences and behavioural sciences.

Because research is interdisciplinary, this development plan does not specify research by study areas or as the activity of the centre of excellence or a specific centre; rather, research is presented under two major areas, the first focusing on health and wellbeing and the second on natural sciences, natural environment and sustainable development.

#### **Health and wellbeing, health and wellbeing in the environment**

- Research in the fields of health, wellbeing and healthy lifestyle, including psychology, recreation, creative therapies and sports sciences related to mobility (together with the activities of the Centre of Excellence in Behavioural and Neural Sciences).
- Exploring and describing links between molecular and behavioural sciences and the neuronal mechanisms of brain functions in research concerning neurodegenerative processes, in the context of anxiety and impulsivity (together with the activities of the Centre of Excellence in Behavioural and Neural Sciences).
- Research in cognitive psychology, describing the role of developmental and cognitive processes in wellbeing, behaviour and brain functions.
- Natural and social environmental factors affecting wellbeing in both urban and natural environments (in cooperation with SNSH working groups)
- The development of interdisciplinary research area of adaptation to climate change in cooperation with SNSH working groups and other schools.
- To increase the share of interdisciplinary projects, including research projects on neurodegenerative diseases (in cooperation with the Centre of Excellence in Behavioural and Neural Sciences).
- To establish the research group and research area of experimental legal psychology (in cooperation with the Centre of Excellence in Behavioural and Neural Sciences).
- To develop and improve the methodology and tools for evaluating various components of

physical and technical performance of athletes and amateurs, and to develop the relevant services for those practicing different kinds of sports.

### **Natural sciences and sustainability**

- We will determine the time and spatial impact of different scale natural and anthropogenic processes on the functioning and development of water-related ecosystems (bogs, lakes (including turloughs), rivers, coasts and catchment areas) at multi-scale level and develop scientific principles of maintaining and restoring these ecosystems with a particular focus on ecosystems depending on groundwater;
- Strengthening research in the field of biopolymers at Tallinn University. Research in biopolymers (mainly polysaccharides), adding value to biomass of various origin, developing innovative extraction and treatment methods and extracting, cleaning and using enzymes degrading/modifying biopolymers (in cooperation with the Centre of Excellence in Behavioural and Neural Sciences).
- We will develop the theory of stochastic processes and a basis for its interdisciplinary applications in order to analyse, inter alia, random processes in plasma and materials, neural networks and language development (in cooperation with the Centre of Excellence in Behavioural and Neural Sciences).
- We will use formalism based on multifractal analysis to analyse alloys damaged by plasma and study the impact of plasma flow on the behaviour of novel tungsten alloys in plasma chambers of fusion installations;
- In the field of molecular sciences, to develop service packages for the private sector based on high-level research and development work.
- We will develop and implement the evaluation of social impacts in the field of evaluating environmental change, including within the framework of civic science and environmental education in cooperation with SNSH working groups.
- Strengthening research in the field of sustainable development at Tallinn University.

### **3.4 LONGER-TERM DEVELOPMENT PLAN OF THE UNIT\***

It is planned to strengthen cooperation between various research areas of SNSH (biology, research in neurological processes, physics, ecology, environmental management, sustainable development, use of resources, sports sciences) (1.4.1.).

In order to improve the quality of teacher education, we will develop the didactics of physics, chemistry, biology and geography and subjects of technology based on the paradigms of educational innovation (1.4.3.).

Developing arts based tools and guidance materials to be used in teaching and learning. Research in the effect of creative arts therapies (1.4.2.).

Developing training and services related to organisational behaviour and psychology (1.4.2.).

In all research areas, the strength of a team is based on interdisciplinary approach. We will increase the willingness of academic staff to address social problems and challenges that require interdisciplinary approach (2.1.3).

We will ensure secure storage of research data and availability of data for use for research purposes (4.3.3.).

We will participate in partnerships with the public and private sector in order to develop our fields of activities and to prepare strategies (2.3.2.).

We will make the results of scientific and applied research accessible to society and our cooperation partners (4.1.1.) and share success stories related to the development of products and services (2.3.2.).

We will develop interdisciplinary research related to environmental awareness and education and communication practices based on integrating digital tools into data collection in the format of civic science in cooperation with SNSH working groups (1.4.3).

We will develop the interdisciplinary research area of adaptation to climate change in cooperation with SNSH working groups (environmental management, Institute of Ecology, health sciences) and other schools (1.4.3).

Strengthening cooperation with the private sector and enhancing practical implementation of high-level research results outside academia, including:

1. Developing a system that enables to provide periodic specialised training in SNSH labs to graduates from TLU doctoral study programmes and cooperation partners of TLU (4.1.1.).
2. Creating opportunities for TLU doctoral students and researchers for professional training with cooperation partners. Using the opportunities offered by the doctoral entrepreneurship programme (4.3.2.).
3. Enhancing professional placement (practical training in labs) of Master's students in the private sector; concluding cooperation agreements (4.2.3.).
4. Developing service packages for the private sector based on high-level research and development work. Developing the SNSH infrastructure by taking into account the services/opportunities of interest to the private sector. (4.3.2.).

## **V IMPLEMENTATION OF THE DEVELOPMENT PLAN**

The following form an integral part of the development plan of the academic unit:

Annex 1. Implementation plan for the development plan

Annex 2. List of performance indicators and goals for 2021-2022

Annex 3. Sub-goals of RDC activities

## Annex 1. Implementation plan for the development plan

Sub-goal	Responsible person(s), co-responsible person(s)	Deadline
<b>RDC and the impact on society</b>		
Research and development is aimed at increasing cooperation between academic staff, at international cooperation and at initiating and carrying out joint projects (2.1.2.).		
Action 1: Information seminars on various funding options and analysing rejected applications.	Research coordinator in cooperation with the marketing and communication specialist	Continuous
Action 2: To involve the staff of other study areas and units in the planning and implementation of projects. To develop versatile and larger research groups to ensure the representation of additional competences.	Research coordinator, leaders of research groups	December 2022
We will develop administrative capacity to apply for and successfully carry out research projects (3.1.1.).		
Action 1: Training – application for and implementation of projects. Including other members of the research group in preparing applications in order to transfer the experience of stronger applicants.	Research coordinator in cooperation with the Research Administration Office; applicants	December 2022
Action 2: Finding opportunities to reduce the workload of researchers preparing large-scale grant applications (ERC, EU) for the period of application. Hiring project assistants to assist with administrative tasks in the course of implementing large-scale projects.	Administrative head, research coordinator, director	December 2022
We will strengthen cooperation with private and public sector partners (including increasing the number and volume of cooperation contracts) (4.3.2).		
Action 1: Developing new services and improving the existing ones.	Research coordinator	December 2022
Action 2: Publishing information on services on the University website and other relevant websites.	Marketing and communication specialist	December 2022
We will continue organising professional research seminars and series of research seminars involving the whole SNSH (2.3.2.).		
Action 1: Finding new topics and organising seminars	Marketing and communication specialist, research coordinator	December 2022
Action 2: Organising research seminars at the Institute of Ecology and disseminating relevant information	Head of the Institute of Ecology and staff, marketing and communication	December 2022

	specialist	
We will develop the specialised hardware and a set of methods of analysis to contribute to the solution of the main research problems of study areas by using a molecular scientific approach (1.4.1.).		
Action 1: Preparing grant applications for acquiring new equipment.	Research coordinator and leaders of research groups	December 2022
Action 2: Taking new equipment into use: training and integration into educational activities	Relevant academic staff	December 2022
We will develop a hardware basis for neuropsychology research to deliver courses on experimental psychology and to carry out research (1.4.1.).		
Action 1: Preparing grant applications for acquiring new equipment.	Research coordinator and leaders of research groups	December 2022
Action 2: Taking new equipment into use: training and integration into teaching	Relevant academic staff	December 2022
We will use different forms of communication to inform target groups about research in health, wellbeing and sustainable lifestyle as well as about new knowledge and expertise (1.4.1.)		
Action 1: Activities to popularise research and present research results: TLU website, articles, media coverage, public lectures, sharing information in social media.	Marketing and communication specialist in cooperation with the research coordinator and researchers	December 2022
Action 2: Participating in series of lectures: public seminars, the series <i>Ekspert Eetris</i> , etc.	Marketing and communication specialist in cooperation with the research coordinator and researchers	December 2022
We will contribute to the development of society based on the principles of sustainable development (4.3.1.).		
Action 1: Offering services to companies and the public sector.	Research coordinator in cooperation with researchers	December 2022
Action 2: Activities to popularise research and present research results: articles, media coverage, public lectures, sharing information in social media.	Research coordinator in cooperation with the marketing and communication specialist and researchers	December 2022
<b>Provision of education</b>		
We will implement modern approach to teaching and learning, and integrate competences related to entrepreneurship, sustainability, mobility and creativity into teaching (1.1.2).		



Action 1: In the course of preparing study programmes for 2021 and 2022, analysing the existing teaching and assessment methods, and supporting academic staff in managing the changes	Head of studies in cooperation with administrators	March 2021
Action 2: Developing further the SNSH general course in terms of content and methods of teaching in order to integrate the relevant competences and to achieve the desired results	Head of studies in cooperation with administrators and lectures	September 2022
We will promote the teaching profession, mental health, sustainable lifestyle and disseminate results of research (1.1.1.).		
Action 1: Popularising SNSH teacher education and the relevant study programmes, including in the media and through visits	Marketing and communication specialist, study programme administrators	December 2022
Action 2: Participating in activities to popularise research (1 minute lectures, the <i>Ekspert Eetris</i> series) and presenting most recent research achievements	Academic staff	December 2022
We will develop competences and knowledge related to research ethics and professional ethics in training (4.3.3).		
Action 1: The academic staff participates in preparing TLU guidelines of good practice; the changes arising from the guidelines are implemented in the provision of education	Academic staff, administrators, academic staff	December 2022
Action 2: Disseminating information on the activity and experiences of TLU Ethics Committee, sharing good practices of dealing with ethical issues, which have been implemented in SNSH	Head of studies, members of the TLU Ethics Committee	December 2022
We will evaluate the cost-effectiveness of studies and implement effective solutions in the organisation of studies (4.2.3.).		
Action 1: Assessing the potential workload of academic staff arising from different teaching methods and participating in TLU development processes to specify and implement the principles of calculating the workload of lecturers	Head of studies, administrative head, administrators, administrative assistant	December 2022
Action 2: Cooperating with the TLU Finance Office in comparative mapping of the costs of the provision of degree studies; explaining the results and principles of the development of study programmes	Administrative head, head of studies	March 2022
We will participate in the development of professional standards (including professional standards for teachers) in cooperation with professional associations and the Estonian Qualifications Authority and base the provision of education on these standards (4.2.4.).		
Action 1: Participating in the work of the qualifications committees and analysing the compliance of professional standards as part of the process of the development of study programmes	Members of the qualifications committee, administrators	March 2022
Action 2: Reviewing the possibilities of professional placement related to the professional standards and	Administrators, academic staff	May 2021

supplementing placement guidelines with the principles of implementing remote professional placement, as appropriate		
We will improve the lecturers' skills of using e-learning methods to provide e-courses (4.2.1.).		
Action 1: Offering, in cooperation with TLU Personnel Office and E-learning Centre, training to academic staff on using e-solutions in teaching	Head of studies in cooperation with the Personnel Office and E-learning Centre	September 2022
Action 2: Sharing lecturers' experiences with e-learning solutions in the school and provide peer advice and support to develop courses	Head of studies, academic staff	December 2022
We will provide study mobility opportunities to students to study or undergo practical training at different European universities, companies, research or practical training centres or in a similar organisation (3.2.3.).		
Action 1: Assessing the usability perspective of the existing Erasmus agreements and preparing for the new agreement period.	Erasmus coordinators, administrators	September 2022
Action 2: Developing, in cooperation with TLU central developments, the principles of distance learning and professional placement and implement the principles in counselling, teaching or professional placement activities.	Head of studies, Erasmus coordinators, administrators	September 2022
We will implement cooperation agreements with various foreign universities to provide students with an opportunity to study for up to two semesters as exchange students at a partner university (3.2.2.).		
Action 1: Mapping the potential cooperation partners and assessing the compliance of their provision of education with the SNSH study programme.	Administrators in cooperation with Erasmus coordinators	September 2022
Action 2: Developing, in cooperation with TLU central developments, the principles of distance learning for exchange students	Head of studies in cooperation with Erasmus coordinators	December 2022
taking into account the current mobility restrictions and, if possible, pilot the principles with 1 or 2 students.		
We will develop, in cooperation with the School of Educational Sciences, innovative teaching and learning methods for the provision of both formal and non-formal education (1.1.2.).		
Action 1: Participating in the development projects and activities of the School of Educational Sciences.	Academic staff	December 2022
Action 2: Implementing the methods in degree studies and sharing experiences.	Academic staff, administrators, academic staff	December 2022
We will react flexibly to the expectations and needs of society and in the development of new continuing education programmes develop flexible learning opportunities that take into account learners' needs (1.4.1.).		

Action 1: Providing continuing education to the public based on the market demand.	Continuing education programme coordinator	December 2022
Action 2: Developing new innovative study programmes in cooperation with renowned specialists in the field.	Continuing education programme coordinator in cooperation with academic staff	December 2022
We will participate in lifelong learning development projects aimed at the systematic development of continuing education and at increasing the training offers (1.4.2.).		
Action 1: Involving new training partners and preparing training offers in cooperation with them.	Continuing education programme coordinator	December 2022
Action 2: Involving new trainers and developing training programmes based on training needs.	Continuing education programme coordinator	December 2022
<b>Management, members, finances, organisational culture</b>		
To develop study programmes, we will offer in cooperation with the Personnel Office and the School of Educational Sciences continuing education courses to lecturers, and group training and counselling to the main lecturers of study programmes (1.1.1.).		
Action 1: Mapping annually the training needs of SNSH staff in order to implement the modern approach to teaching and learning.	Administrative head in cooperation with the marketing and communication specialist	December 2022
Action 2: Agreements with the Personnel Office and the School of Educational Sciences on the provision of training based on training needs. Training courses may be intended to all staff of the University or be specifically designed for SNSH staff.	Administrative head in cooperation with Personnel Office and School of Educational Sciences	December 2022
We will plan and develop the working environment by providing opportunities to interact with other staff and to improve general competences (1.4.2.).		
Action 1: Gathering, in the course of performance assessment, proposals and suggestions from the staff for improving the working environment.	Administrative head in cooperation with work environment commissioner and work environment specialist	December 2022
Action 2: Placing great importance on and taking into account the special needs of individuals when shaping the working environment.	Administrative head in cooperation with working environment representative and working environment specialist	December 2022
In order to improve academic efficiency, we will improve the staff's knowledge and skills of using IT applications and databases (4.3.4).		

Action 1: Mapping annually the digital skills training needs of SNSH staff.	Administrative head in cooperation with marketing and communication specialist	December 2022
Action 2: Agreements with the Personnel Office on the provision of training on IT skills. Training courses may be intended to all staff of the University or be specifically designed for SNSH staff.	Administrative head in cooperation with Personnel Office and School of Digital Technologies	December 2022
We will accept flexible forms of work (remote work, flexible worktime), provided that it does not have a negative effect on the quality of work or on the work of other staff (4.3.4.).		
Action 1: Our activities are based on the principles of remote work established at the University; we inform the staff of possibilities to work remotely.	Administrative head, head of studies, director of SNSH	December 2022
Action 2: Allowing remote work if this is agreed with and coordinated with the employee's immediate superior.	Administrative head, director, head of studies, heads of study area, head of the centre	December 2022
We will provide short-term and long-term mobility opportunities to foster the internationalisation of staff by using the opportunities offered by various funds and cooperation agreements (3.3.1.).		
Action 1: Informing the staff through the research list about project applications and mobility opportunities	Research coordinator, Erasmus coordinators	December 2022
Action 2: Supporting staff members in preparing mobility applications and planning teaching activities	Research coordinator, Erasmus coordinators, head of studies	December 2022
We will support the motivation of staff and opportunities to exercise and participate in joint physical activities (1.4.1.).		
Action 1: Participating in the challenges proposed by the marketing and communication office during the physical activity month	SNSH staff	December 2022
Action 2: Planning physical activity and training in the framework of SNSH spring conference.	Administrative head, head of studies	December 2022
We will develop a supporting organisational culture through SNSH events and training programmes (1.4.2.)		
Action 1: Organising annual SNSH staff Christmas party (including rewarding staff members) and SNSH spring conference	Administrative head, head of studies, research coordinator, marketing and communication specialist	December 2022
Action 2: Organising training for supervisors of doctoral theses to improve their supervising skills; organising bi-annual events for study specialists	Administrative head, head of studies	December 2022
We will implement the principles of sustainable development in the learning and working environment (1.4.1.).		
Action 1: Awareness raising activities to reduce the volume of waste paper and other waste.	Administrative head	December 2022
Action 2: If possible, preferring old furniture to buying new New workstations are furnished by using the existing furniture.	Administrative head	December 2022

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**Annex 2. Performance indicators\***

	Interdisciplinarity	Internationalisation	Excellence and sustainability
RDC and the impact on society	<p>Volume of funding for interdisciplinary research projects/percentage of research-based funding of RDC</p> <p>Volume of funding for customer-based RDC/percentage of total funding of RDC</p> <p>Number of TLU products and services in the EXU portfolio / on the Adapter platform</p>	<p>Volume of funding for international research projects/percentage of research-based RDC funding</p> <p>Number of international post-doctoral fellows</p>	<p>Number of high-level scientific publications per academic staff</p> <p>The three-year average volume of funding for research-based RDC.</p> <p>Number of defended doctoral theses</p>
Provision of education	<p>Number of study programmes integrating the subjects of two or more specialities</p>	<p>Share of academic staff with working and studying experience outside the University (including international experience).</p>	<p>The share of students who graduate within the nominal study time is at least equal to the average of TLU. Students satisfaction with the teaching and learning process is at least equal to the average of TLU.</p>
Management and organisational culture	<p>Increased cooperation in carrying out joint activities: the number of joint activities (research projects, seminars, courses, conferences).</p>	<p>Mobility of SNSH staff. Long-term professional development with foreign partners.</p>	<p>An increase in average basic pay that is below the median pay for lecturers.</p> <p>Motivation of SNSH staff (measured by means of a staff satisfaction survey) is above the TLU average level.</p>

## **Annex 4. Research topics**

This annex to the Development Plan includes the topics which were formulated as goals in the SNSH Development Plan 2016-2020 to provide an overview of SNSH research areas.

### **Health and wellbeing, health and wellbeing in the environment**

1. We develop instrumental and bioanalytical methods and use them to establish the regularity of natural processes, including neuropsychological processes, at molecular level;
2. We analyse the efficiency of low-molecular inhibitors on the toxicity of amyloid beta-peptide in the prophylactics of the Alzheimer's disease. We evaluate the gene variations of the early Parkinson's disease and link the results of bio-informative analysis with clinical meta-data;
3. We develop diagnostic methods for evaluating the mental condition and motor functions of people with different forms of brain damage and procedures for the implementation of such methods;
4. We study cognitive mechanisms of the development of school children and develop diagnostic methods for evaluating cognitive development;
5. We develop methods for measuring hearing and propose a relevant service;
6. We develop diagnostic methods for evaluating neuronal and psychological underpinnings of aggressive behaviour and procedures for the implementation of such methods;
7. We study positive restorative effects of nature and develop opportunities for exercising in order to improve people's wellbeing;
8. We involve different stakeholders for a more sustainable management of urban ecosystem and find ways to support sustainable functioning of ecosystems;
9. We develop target group specific creative arts therapies and assess their impact on wellbeing and health; we develop Estonian-language assessment methods for creative arts therapies;
10. We study the mechanisms of the functioning of arts therapies and implement the mechanism in clinical and school environments to support people's coping with life and their wellbeing;
11. Psychodiagnostic assessment of students' social, motivational and cognitive development;
12. We study the urban space supporting health and wellbeing and the principles of sustainable development and develop inclusion practices to change the behaviour of different groups;
13. We study and develop the forms of governing and managing the modern field of sports and exercising.

### **Natural sciences and sustainable development**

1. We establish the changes in the frequency of storms by using ecological, sedimentological and geomorphological data and assess the impact of the changes on the evolution of coasts, vegetation and land use in Estonia over the last millennia;
2. We develop interdisciplinary research methods based on the concept of ecosystem services; we develop communication and education practices supporting sustainable development in cooperation with working groups SEEMIK and KeKä;
3. We develop the capacity to model the ecohydrological mechanisms of the functioning of river and lake ecosystems;

4. We develop paleo-ecological, landscape ecological, telmatological and coastal geological research methods;
5. We develop methods for the assessment of environmental impacts and status to forecast environmental variability in time;
6. We continue applied research into the use of natural resources, environmental status and nature conservation; water environment and its protection and management, including the management and protection of catchment areas and communication practices; greenhouse gas emissions from and renaturalisation of bogs;
7. We develop efficient methods of adding value to plant biomass. Potential cooperation partners are companies operating in the fields of biomass processing, biotechnology, food, pharmacy, cosmetics and materials technology;
8. We study the living environment supporting health and wellbeing and the principles of sustainable development and develop inclusion practices to change the behaviour of different groups;