APPROVED
by Order No. V-59/4-48
of the Minister of Education and
Science and the Minister of Economy
of the Republic of Lithuania
of 29 January 2014

ACTION PLAN OF THE PRIORITY INNOVATIVE DEVELOPMENT, IMPROVEMENT AND PROCESSING OF BIOLOGICAL RAW MATERIALS (BIOREFINERY) OF THE PRIORITY AREA OF AGRICULTURAL INNOVATION AND FOOD TECHNOLOGIES OF THE SCIENTIFIC RESEARCH AND (SOCIO–CULTURAL) DEVELOPMENT AND INNOVATION (SMART SPECIALISATION)

CHAPTER I
GENERAL CLAUSES

1. The action plan of the Innovative Development, Improvement and Processing of Biological Raw Materials (biorefinery) (hereinafter referred to as the Action Plan) of the Agricultural Innovations and Food Technologies priority area of the Research and (Socio–Cultural) Development and Innovation (smart specialisation) (hereinafter referred to as the RDI Priority Area) was developed in the course of implementation of the Programme on the approval of the programme on the implementation of the priority areas of research and (socio–cultural) development and innovation (smart specialisation) and their priorities (hereinafter referred to as the Programme) approved by the Resolution No. 411 of the Government of the Republic of Lithuania on 30 April 2014.

2. The Action plan was developed in order to establish the clauses of implementation of the Priority Innovative Development, Improvement and Processing of Biological Raw Materials (Biorefinery) (hereinafter referred to as the Priority) of the RDI Priority Area.

3. The Action Plan will be implemented in 2015-2020.

4. The term of biorefinery used in the Action Plan means sustainable processing of biomass into bioproducts (food, animal feed, chemicals, materials) and bioenergy (biofuel, energy and (or) heating).

5. Other terms used in the Action Plan have the same meanings as the terms used in the Programme.

CHAPTER II
DESCRIPTION OF THE CURRENT SITUATION

6. At present, there are about 30 companies engaged in collection, transportation, warehousing and processing biomass. Besides, several hundred companies manufacture boilers, employing over 1 thousand people in total. The value added created in 2012 was over EUR 115,8 million. Nearly all food companies, which have by-products and waste produced during the processing, are interested into processing them into higher-value products and increasing production efficiency, waste reduction and waste utilisation expenses. Investments into research and (socio–cultural) development (hereinafter referred to as R&D) account for 0.37% of the created value added .

7. The value of investments made by business community into R&D projects in 2007-2013 was about EUR 2,6 million.

8. The outcome of the biorefinery process includes a wide range of highly-valuable products which can be used in production of food, cosmetics, household detergents, pharmaceuticals and for other purposes. Therefore, these products enjoy a very huge potential for export, are independent from the demand of specific manufacturers or countries. Biorefinery products can have multifunctional production, thus ensuring flexible and prompt shift in orientation according to the

market needs. The value of the export of wood used as a fuel in 2012 was EUR 60 million. The global market is growing (the global biomass production is forecasted to reach EUR 555 billion in 2015). Furthermore, the biorefinery technologies themselves and means intended for them (including: special purpose sets of ferments, strains of micro-organisms) can be reproduced and exported as innovations.

9. Lithuanian higher education and research institutions and business companies closely cooperate in the activities of the National Food Economy Cluster.

10. The potential of the Lithuanian higher education and research institutions capable of contributing to the implementation of the Priority is relatively high. The numbers of experts trained in the field of food industry and industrial biotechnology is growing every year, quite highly-qualified experts of chemical engineering are trained. Challenges and problems which are expected to be dealt with in the course of the Priority implementation have been relevant for a long time, while the systematic approach to their handling was taken in 2007-2013, during the period of the European Union Structural Funds. Substantial progress has already been achieved at the result of scientific researches financed under the measures of the latter period. The national research programme "Healthy and Safe Food", aimed at systemising new research knowledge needed for development of methods and adaptation of biomaterials for new safe food products of higher quality and increased biological value, in line with the healthy nutrition principles and competitive on both domestic and foreign markets, as well as at preparing theoretical grounds for development of production technologies of functional food products, through rational deployment of local raw materials and safe supply of products to consumers, hat has been implemented from the national budget of the Republic of Lithuania since 2011 has also contributed to this progress. When formulating the combination of measures needed for the Priority implementation, the progress achieved in the field of biorefinery researches was taken into consideration.

Agriculture and food industry, being highly important for state and social welfare, are not intended to be neglected in the future either. The new national research programme to be financed from the national budget of the Republic of Lithuania - Sustainability of Agricultural, Forest and Water Ecosystems is planned to be launched in 2015, the outcomes of which will be relevant when implementing the Priority.

In the course of the implementation of the Development Programmes of Integrated Science, Studies and Business Centres (Valleys), research centres are being founded at the higher education and research institutions, the R&D infrastructure available in which is used for the activities of relevance for the Priority implementation. The following institutions should be mentioned: joint Agrarian and Forest Research Centre combining the research potential of both Aleksandras Stulginskis University and Agrarian and Forest Science Centre, Food Science and Technology Centre of Kaunas University of Technology, Nature Research Centre engaged in the continuous development and updating of the infrastructure of technologies for research and use of biological and land resources intended for R&D activities, which is serving the needs of not only scientific community but also of private sector.

The new common EU research and innovation programme "Horizon 2020" stipulates several objectives in the field of Society, into fulfilment of which active involvement of Lithuanian researchers and other experts is expected in the following fields: food supply security, sustainable agriculture, marine and seafaring scientific research and bio-economy.

Nevertheless, despite the efforts to support R&D activities, the results of the scientific research have not been subjected to successful commercialisation yet, therefore this gap is expected to be filled in by successfully-implemented Priority.

11. In order to implement the Priority, the R&D resources in such subject fields of the SR&ED as biotechnology, chemical engineering and food technologies need to be strengthened and concentrated. To achieve enhanced human competences in the latter fields, highly-qualified experts of chemical engineering, biotechnology and food science and technologies need to be trained. Furthermore, Lithuania, aspiring to promote the reorganisation and competitiveness of the national economy through the resources available, should enhance business competences to contribute to the

development and installation of newly-developed technologies in such economic fields, as: biotechnology, chemical and food industry, and should promote knowledge-intensive companies mastering new technologies and equipment intended for installation of processes.

CHAPTER III
COMPLIANCE OF THE ACTION PLAN WITH THE PROGRAMME AND OTHER STRATEGIC LEGISLATION

12. The Action Plan contributes to the achievement of the strategic purpose and the purposes laid down in Subparagraphs 19.1 and 19.2 and fulfilment of the task established in Subparagraph 20.3 of the Programme, i.e. to promote the R&D and innovation activities, which would create prerequisites for formation of a sustainable food chain, sustainable use of biological resources in the agriculture and food industry, production of safe and quality food, efficient development and use of food raw materials.

13. The Action Plan consists of the following actions:

13.1. development of innovative technologies, products, processes and methods and their application on the market;

13.2. promotion of start-up of knowledge-intensive businesses, development of companies with great potential;

13.3. promotion of clustering, integration into international value creation networks and investments into the R&D and innovations;

13.4. promotion of cooperation between science and business, sharing of knowledge and technologies in order to commercialise the R&D outcomes;

13.5. enhancement of the potential and competences of the higher education and research institutions to develop and commercialise knowledge and to train specialists.

14. Implementation of the Action Plan is intended to contribute to the changes that are expected to take place in the course of the implementation of the National Progress Strategy under the Lithuania's Strategy for the Progress of Lithuania ‘LITHUANIA 2030‘ approved by Resolution of the Seimas (Parliament) of the Republic of Lithuania No XI-2015 of 15 May 2012 ‘On the approval of the National Progress Strategy ‘Strategy for the Progress of Lithuania ‘LITHUANIA 2030‘. The results to be produced during the Priority implementation are integral with the good health condition of society, guaranteeing active involvement in social life, therefore the major contribution of the Priority will be made into the fulfilment of the smart society creation vision by developing healthy society. Following the implementation of the Priority, its outcomes will be useful to some extent also when pursuing the smart economy purposes, by building Social Business Responsibility and harmonious use of resources, in order to secure stability of ecosystems and to preserve biological diversity, harmoniously developing forestry and sustainable agriculture and fishery .

CHAPTER IV
STAGES FO THE PRIORITY IMPLEMENTATION

15. Measures used for the Priority implementation were chosen in accordance with the Lithuanian Innovation Development Programme, approved by the Resolution of the Government of the Republic of Lithuania of 18 December 2013 No. 1281, National Development Programme of the Studies, Research and (Socio–Cultural) Development for 2013-2020, approved by the Government of the Republic of Lithuania of 5 December 2012, Resolution No. 1494 and their implementing legislation.

16. The set of the measures of the studies and R&D and innovation policies needed for the Priority implementation was established in accordance with the report drawn by the international working group of independent experts on 21 February 2014 - Roadmaps of the Implementation of Priorities. Considering the above-mentioned report, the following stages of the Priority implementation are distinguished:

16.1. the stage of critical mass generation of scientific potential embraces the activities concerning the creation of the environment suitable for searching for innovative ideas and solutions, developing technologies and prototypes and making preparations for carrying out the latter activities;

16.2. search for innovative ideas and their solutions embraces fundamental scientific researches of general and specific nature needed for the implementation of the Priority;

16.3. the stage of the development of technologies and their prototypes embraces industrial scientific researches and experimental applied activities needed of the implementation of the Project;

16.4. the stage on the introduction to the market embraces the activities related with the placement of innovative products onto the market;

16.5. the stage of critical mass generation of business potential embraces the activities related with the transfer and dissemination of knowledge and innovations in society and their application on a broad scale.

17. Actions laid down in Subparagraphs 13.1-13.5 of the Action Plan will be carried out when implementing the measures established in Annex No. 1 to the Action Plan.

18. Annex 2 to the Action Plan establishes the set of measures of the studies and R&D and innovation policy relevant in each stage of the Priority implementation.

19. Actions and measures established in Annex 1 to the Action Plan are implemented with consideration of the set of measures of the studies and R&D innovation policy set forth in Annex No. 2.

CHAPTER V
THEME-SPECIFIC CHARACTER OF THE PRIORITY

20. Implementation of the Action Plan is aimed at:

20.1. researching and developing innovative agricultural raw materials of designed composition and advanced technologies of their production;

20.2. researching and developing combined technologies of extraction and fractioning of agricultural raw materials;

20.3. researching and developing effective technologies of physical-chemical and biocatalytic processing of agricultural raw materials.

21. Successful implementation of the activities laid down in Subparagraphs 20.1-20.3 above is integral with the R&D activities carried out by public and private sector institutions.

22. During the implementation of the Priority, important role is played by the Joint initiatives of Studies, Research and (Socio–Cultural) Development and Innovations (hereinafter referred to as the Joint Initiatives) on the basis of which issues relevant for economic sectors are planned to be handled, by carrying out the R&D activities in the themes relevant for economic sectors and expecting the private sector entities to show involvement into the realisation of the R&D operating outcomes. When implementing the Joint Initiatives, taking the activities laid down in Subparagraphs 20.1-20.3 of the Action Plan and the actions established in Subparagraphs 13.1-13.5 of the Action Plan into account, the R&D activities are carried out in order:

22.1. to develop, distinguish and stabilise the wheat genotypes intended for starch and gluten production; to purify and procreate promising selective lines and genotypes, which can be useful for starch and gluten production;

2.2. to obtain non-starch polysaccharides and oligosaccharides from wheat starch production waste, identifying the extraction methods, assessing the possibilities of separation of individual components, possibilities to purify several components during the same process;

22.3. to increase the value of non-starch polysaccharides, identifying and adapting the processes of chemical and biocatalytic conversion and reasoning their needs; to examine the possibilities for development, immobilisation, optimisation of producents of new more effective catalysts intended for mono-, di- and oligosaccharides conversion;

22.4. by applying different methods and materials, considering potential product application, to search for the modes of removing proteins and lipids from wheat starch, to examine the possibilities for regenerating technologies development;

22.5. to search for technological solutions for isolation of wheat proteins and ferments (protease);

22.6. to make thorough assessment of vegetable oils (wheat, cannabis, linseed, judra, amaranth, and other oil cultures) and biologically-active compounds dissolving in them, their functional properties and processing technologies in pursuit of their industrial processing development valorisation;

22.7. to improve fermenting processes of processed biological raw materials, to optimise the technologies for isolating fermentation products; to develop technical concepts of identified biocatalysts production;

22.8. to develop and assess the technologies of physicochemical and biocatalyst processing and adaptation of lignocellulose biological raw materials;

22.9. to assess the possibilities of processing various agricultural raw materials and by-products and waste of food processing by converting them into higher-value fractions (products), to develop and valorise the processing processes, application of the technology in various fields;

22.10. to test effective technologies of physicochemical and biocatalyst biomass processing into biomonomers and to optimise their development processes;

22.1. to develop technical concepts of biorefinery of agricultural raw materials and by-products and waste of food processing.

23. Implementation of the Joint Initiatives is aimed at creation of the prerequisites by the activities listed in Subparagraphs 22.1-22.11 of the Action Plan for the following:

23.1. introduction of innovative species and genotypes of wheat and other grain and oil cultures to the market;

23.2. introduction of wheat proteins, as food supplements and athletes' diet elements, to the market;

23.3. introduction of wheat ferments to the market;

23.4. introduction of non-starch polysaccharides of wheat, as hydrocolloids, thickeners and stabilisers, to the market;

23.5. introduction of lipids of wheat and other oil cultures and components dissolving in fats to the market;

23.6. launching production of biocatalysts intended for isolation and processing of non-starch polysaccharides;

23.7. introduction of bio-methionine to the market (animal feed production);

23.8. ensuring the most cost-effective supply of lignocellulose raw materials in the required quantity and of needed quality for the value chain of bioplastics production;

23.9. introduction of bioplastics obtained by using biomonomers to the market;

23.10. introduction of purified wheat starch to the market;

23.11. introduction of starch-based synthetic polymer substitutes to the market;

23.12. introduction of innovative products developed by applying biorefinery processing of agricultural raw materials and by-products and waste of food production to the market.

24. Subparagraphs 22.1-22.11 of the Action Plan can be amended by deleting or supplementing the stipulated activities at the proposal of the coordination group formed by the Minister of Education and Science and the Minister of Economy on 20 June 2014, Order No. V-576/4-409 to coordinate the implementation of the priorities of the Scientific Research and Experimental (Social and Cultural) Development and Innovations (hereinafter referred to as the Coordination Group), taking into consideration the data and proposals collected during monitoring and assessment of the implementation of the Programme and Action Plan or other valid data and proposals.

CHAPTER VI
IMPLEMENTATION OF THE ACTION PLAN

25. The Action Plan can be implemented from the following sources:

25.1. funds from the national budget of the Republic of Lithuania:

25.1.1. funds of the European Union Structural Funds for 2014-2020 (funds under the measures of Priority 1 "Promotion of Scientific Research, Experimental Development and Innovations" of the Action Programme of the European Union Structural Funds for 2014-2020 (hereinafter referred to as the Action Programme), Priority 3 "Fostering Competitiveness of Small and Medium Enterprises" of the Action Programme, and Priority 9 "Public Education and Increase of Human Resources Potential" of the Action Programme);

25.1.2. funds from the national budget of the Republic of Lithuania (excluding the European Union Structural Funds);

25.2. funds of the higher education and research institutions;

25.3. funds of private legal entities;

25.4. Funds from the European Union scientific research and innovation programme Horizon 2020 and other international programmes.

26. Some funds of the measures under Priorities 1 and 9 of the Action Programme are intended for direct support of the activities needed for the Project implementation, therefore these measures in the Table in Annex 1 have a preliminary amount written next to them, which is intended to be used for the Priority implementation, if needed.

27. Some of the funds of the measures under the Priority 1 of the Action Programme are not attributed to specific priorities of the priority areas of the scientific research and experimental (social and cultural) development and innovations (smart specialisation) (hereinafter referred to as the RDI priorities), their implementation results can contribute to the implementation of all or majority of the RDI priorities. These measures are marked with asterisk symbol in the Table in Annex No. 1 to the Action Plan.

28. Measures co-financed under the Priority 9 of the Action Programme and the national budget of the Republic of Lithuania are relevant for the whole system of the studies and R&D and innovations, and are not to be attributed to specific RDI priorities, but their implementation results can contribute to the Priority implementation. These measures are marked with two asterisk symbols in the Table in Annex No. 1 to the Action Plan.

29. Measures of the Priority 3 of the Action Programme, despite being relevant for the whole system of business conditions improvement and assistance to business, will make indirect contribution to the Action Plan implementation, mainly by creating conditions for private sector members to introduce innovative products to the market and by generating critical mass of business potential.

During the implementation of the measures under the Priority 3 of the Action programme, the following activities relevant for the Priority implementation are planned to be supported: designing manufactured articles and (or) products, introducing highly-effective technologies into conventional industries, presenting products at international exhibitions and (or) trade fairs, certifying products and services planned to be exported, increasing manufacturing and servicing capacities, developing infrastructure of business incubators, membership in international networks (platforms), increasing awareness of new products and services, consulting for business startups.

30. Funds of the higher education and research institutions are planned to be attracted through support of activities related with development and updating of the studies and R&D infrastructure needed for the implementation of the Project (during implementation of infrastructure projects, partial contribution of higher education and research institutions from their own funds is expected). In the Table in Annex 1 to the Action Plan, the latter funds are recorded in the column National Budget and Other Funds.

31. Funds of private legal entities are planned to be attracted through implementation of measures, projects implemented under which have national co-financing planned - business companies will have to spend their own funds to cover a part of the value of the projects. In the Table in Annex 1 to the Action Plan, these funds are recorded in the column "Funds of the Private Sector".

32. The Priority can be partly implemented through participation in the European Union research and innovations programme Horizon 2020 and other international programmes. The funds attracted through participation in international programmes are not reflected in the Table of Annex 1 to the Action Plan.

33. Through implementation of the Action Plan, qualitative and quantitative outcomes satisfying the assessment criteria established in Annex 1 are pursued.

34. Deadlines for inviting tenders for the implementing measures of the actions under the Action Plan or making the lists of projects will be established in accordance with the plans drawn by the ministries for publishing invitations to submit tenders and making lists of projects, as stipulated in the Administration Regulations of the action programme of the European Union Fund Investments 2014-2020 approved by the Resolution No. 1090 of the Government of the Republic of Lithuania of 3 October 2014 "On the approval of the administration regulations of the action programme of the EU fund investment 2014-2020".

35. The Coordination Group coordinates the development of priority areas of the RDI and implementation of their priorities.

36. The Programme and the Action Plans of the RDI Priorities are implemented to promote and support interaction and cooperation between business entities and science and education institutions. The promotion of cooperation between business entities and science and education institutions, in accordance with the procedure established by the Ministry of Education and Science and the Ministry of Economy, is implemented by the Agency for Science, Innovation and Technology. The implementation process of the Programme is continuously monitored by analysing and assessing the implementation of the Action Plans of RDI Priorities. Monitoring and assessment of the Programme implementation, in accordance with the procedure established by the Ministry of Education and Science and the Ministry of Economy, is carried out by the Science and Studies Monitoring and Analysis Center (MOSTA).

37. Infrastructure to be developed and equipment to be acquired in the course of the projects planned to be financed from the EU funds or other sources and implemented under the studies and R&D and innovation policy measures established in the Annex to the Action Plan may not be the same as the equipment currently available at the higher education and research institutions or other entities of public sector, unless the existing equipment has insufficient capacities needed for the Priority implementation.

38. The list of measures provided in the Annex 1 to the Action Plan can be amended according to the results of the interim assessment of the Priority implementation planned for 2018, as well as taking the needs of implementers of the measures into consideration.

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Annex No. 1
To the Action Plan of the Priority Innovative Development, Improvement and Processing of Biological Raw Materials (Biorefinery) of the Priority Area of Agricultural Innovations and Food Technologies of the Research and (Socio–Cultural) Development and Innovation

ACTIONS OF THE ACTION PLAN, MEASURES, PRELIMINARY FUNDING NEED FOR THE IMPLEMENTATION AND EVALUATION CRITERIA

Actions and measures	Preliminary funds, thousand EUR			Responsible Institution	Evaluation Criteria of Actions and Measures	Value of Criterion	
	European Union Structural Funds	National Budget and Other Funds	Private Sector Funds			Year 2018	Year 2023
Action 1. Development of innovative technologies, products, processes and methods and their application on the market:					**Developed prototypes (concepts) of products, services or processes within 3 years from the project implementation (units)**	**18**	**39**
Measure 1.1. Joint research and business projects contributing to smart specialisation implementation	1 ,940	-	-	Ministry of Education and Science	Number of projects jointly implemented by business and higher education and research institutions (units)	1	3
	717	-	649	Ministry of Economy	Number of certified products (units)	0	1
Measure 1.2. Support to company's RDI infrastructure creation and development and execution of RDI activities (Intelektas)	9,999	-	9,059				
Measure 1.3. Support to companies' RDI by issuing innovation vouchers (Innovation vouchers)							
Measure 1.4. Support to international patenting of inventions and design (InoPatentas LT)							
Measure 1.5. Support to re-certification of innovative products and technologies and testing at laboratories and under real-life conditions (Inosertifikavimas)							

Action 2. Promotion of start-up of knowledge-intensive businesses, development of companies with great potential:	1 ,303	-	145		**Newly-established companies that received investments within 3 years from the project implementation (units)**	**1**	**2**
Measure 2.1. Support to provision of innovative consulting services (Inogeb LT)					The number of companies receiving financial support other than subsidies (units)	1	3
Measure 2.2. Support to R&D implementing companies through financial measures (Technostartas LT, Koinvest LT)							
Action 3. Promotion of clustering, integration into international value creation networks and investments into the R&D and innovations:					**New cluster members in 3 years from launching the project implementation (units)**	**2**	**4**
					Attracted private investments to the R&D within the smart specialisation areas, in 3 years from the project implementation (thousand EUR)	**42,353 ***	**95,295***
Measure 3.1. Support to cluster operation (InfoKlaster LT)	968	-	294		Number of legally-binding agreements with international partners (units)	4	10
Measure 3.2. Support to participation in international RDI initiatives (InoConect LT)							
Measure 3.3. Support to shared RDI infrastructure (Technologinių centrų infrastruktūra)							
Measure 3.4. Support to attraction of foreign direct investments into RDI („Smartinvest LT“)	5,792*	-	-				
Measure 3.5. Support to foreign direct investments in RDI („Smartinvest LT“)	28,962*	-	32,012*				
Action 4. Promotion of cooperation between science and business, sharing of knowledge and technologies in order to commercialise the SR&ED outcomes:				Ministry of Education and Science	**R&D orders implemented by higher education and research institutions and commissioned by business (thousand, EUR)**	**422**	**548,6**
					Revenues of higher education and research institutions from intellectual activity results (thousand, EUR)	**20.9**	**27.1**
Measure 4.1. Establishment and development of a material base for implementation of co-projects of research and business at the higher education and research institutions (establishment and development of the infrastructure of competence centres)	8,690*	-	-		Patent applications and/or applications to EFSA (units) Post-graduate studies implemented together with business entities (number of post-graduate students)	1 1	5 2
Measure 4.2. Support of implementation of R&D activities carried out by competence centres	11,580*	-	-				
Measure 4.3. Implementation of market-oriented research and business projects through cross-border network	93	-	-				

Measure 4.4. Promotion of commercialisation of R&D results at higher education and research institutions	163	504**	-				
Action 5. Enhancement of the potential and capacities of higher education and research institutions to develop and commercialise knowledge and to train experts:					**External users from foreign higher education and research institutions, Lithuanian and foreign business companies, who have used the refurbished infrastructure of open access researches (funds received from such users (thousand, EUR)**	**20**	**26**
					The number of publications frequently quoted in scientific research periodicals (units)	**27**	**35**
Measure 5.1. Modernisation of the R&D and studies equipment in the areas of smart specialisation	52,132*	-	-		Number of researchers working in the improved base of research infrastructure (equivalents to full-time work)	27	35
Measure 5.2. Establishment and development of European scientific research infrastructure and Lithuania's integration into the European scientific research infrastructure following the Roadmap for Lithuanian Scientific Research Infrastructure and ESFRI**	26,066*	1,008**	-		Number of knowledge-intensive spin-offs at higher education and research institutions (units)	0	2
Measure 5.3. Modernisation of the equipment used in the areas of smart specialisation in open-access centres	782	-	-				
Measure 5.4. R&D activities carried out by Lithuanian higher education and research institutions	474	-	-				
Measure 5.5. Subscription of databases needed for SR&ED activities	28,960*	-	-				
Measure 5.6. Creation of the infrastructure of excellence centres and parallel laboratories	26,640*	504**	-				
Measure 5.7. Development of information infrastructure for research and studies (LITNET)	4,340*	-	-				
Measure 5.8. Attraction of foreign scientists and R&D activities	14,481*	-	-				
Measure 5.9. Promotion of the activities of the centres for innovation and technology transfer at higher education and research institutions	14,480*	-	-				
Measure 5.10. Ensuring the process of post-graduate studies; Post-graduate studies, travel, scholarship, R&D, movement, financing of visits (including foreign post-graduate students)	643	62,154**	-				
Measure 5.11. Employment of scientists and other researchers in knowledge-intensive companies	2,896*	-	-				

Measure 5.12. Brain gain and reintegration	5,792*	-	-				
Measure 5.13. Students' R&D activities	2,317*	-	-				
Measure 5.14. Promotion of study placements after the post-graduation studies	7,240*	-	-				
Measure 5.15. Specialist training in the study programmes related with the smart specialisation priorities	186	-	-				
Measure 5.16. Development of science popularisation system	12,000**						
Measure 5.17. Financing first- and second-cycle studies and integrated studies not offering degrees	-	220,032**	-				
Measure 5.18. Supporting mobility of Lithuanian and foreign students and lecturers	-	3,438**	-				
Measure 5.19. Practical training for scientists and other researchers, participation of scientists and other researchers in the earmarked events of the international programmes, participation of Lithuanian researchers in earmarked meetings dedicated to preparation of project applications, participation of Lithuanian representatives in the European Union and other international working groups, committees, commissions related with scientific research and experimental (social and cultural) development. / Promotion of participation in H2020	4,503**	258**	-				
Measure 5.20. Securing funding for the R&D activities relevant for settlement of top-level problems of strategic importance for society and the state and economic development	-	94,314**	-				
Measure 5.21. Supporting intersectoral cooperation in the R&D field	-	2,364**	-				
Measure 5.22. Providing the researchers with access to digital resources of scientific data	-	450**	-				

* Funds not attributed to specific priorities of the priority areas of the scientific research and experimental (social and cultural) development and innovations (smart specialisation), their implementation results can contribute to the implementation of all or majority of the RDI priorities.

** Funds for the measures that are relevant for the entire system of studies and R&D and not attributed to specific RDI priorities, their implementation results will contribute also to the implementation of the Priority.

Annex No. 2
To the Action Plan of the Innovative Development, Improvement and Processing of Biological Raw Materials (Biorefinery) of the Priority Area of Agricultural Innovations and Food Technologies of the Research and (Socio–Cultural) Development and Innovation

SET OF THE MEASURES OF THE HIGHER EDUCATION AND R&D AND INNOVATION POLICIES

Critical mass generation of the scientific potential	Search for innovative ideas and their solutions	Development of technologies and their prototypes	Launching on the market	Critical mass generation of the business potential
Measure 5.1. Modernisation of the R&D and studies equipment in the areas of smart specialisation	Measure 1.1. Joint research and business projects contributing to smart specialisation implementation			Measure 3.1. Support to cluster operation (InfoKlaster LT)
Measure 5.2. Establishment and development of European scientific research infrastructure and Lithuania's integration into the European scientific research infrastructure following the Roadmap for Lithuanian Scientific Research Infrastructure and ESFRI	Measure 1.2. Support to company's RDI infrastructure creation and development and execution of RDI activities (Intelektas LT)			Measure 3.2. Support to participation in international RDI initiatives (InoConect LT)
Measure 5.3. Modernisation of the equipment used in the areas of smart specialisation in open-access centres	Measure 5.4. SR&ED activities carried out by Lithuanian higher education and research institutions	1.5. Support to re-certification of innovative products and technologies and testing at laboratories and under real-life conditions (Inosertifikavimas)		Measure 5.11. Employment of scientists and other researchers in knowledge-intensive companies
Measure 5.5. Subscription of databases needed for R&D activities	Measure 2.1. Support to provision of innovative consulting services (Inogeb LT)			
Measure 5.6. Creation of the infrastructure of excellence centres and parallel laboratories	Measure 2.2. Support to RDI implementing companies through financial measures (Technostartas LT, Koinvest LT)			
Measure 5.7. Development of information infrastructure for research and studies (LITNET)	Measure 3.4. Support to attraction of foreign direct investments into RDI (Smartinvest LT)			
Measure 5.9. Promotion of the activities of the centres for innovation and technology transfer at higher education and research institutions	Measure 3.5. Support to attraction of foreign direct investments into RDI (SmartInvest LT+)			

<table>
<tr><td>Measure 5.10. Ensuring the process of post-graduate studies; Post-graduate studies, travel, scholarship, R&D, movement, financing of visits (including foreign post-graduate students)</td><td colspan="4">Measure 4.4. Promotion of commercialisation of R&D results at higher education and research institutions</td></tr>
<tr><td>Measure 5.12. Brain gain and reintegration</td><td>Measure 5.20. Securing funding for the R&D activities relevant for settlement of top-level problems of strategic importance for society and the state and economic development</td><td>Measure 1.3. Support to companies' RDI by issuing innovation vouchers (Innovation vouchers) cross-country network</td><td rowspan="10">-</td><td>Measure 3.3. Supporting investments into a cluster (InoKlaster LT+)</td></tr>
<tr><td>Measure 5.14. Promotion of study placements after the post-graduation studies</td><td colspan="2">Measure 3.2. Support to participation in international RDI initiatives (InoConect LT)</td><td rowspan="10">-</td></tr>
<tr><td>Measure 5.15. Specialist training in the study programmes related with the smart specialisation priorities</td><td colspan="2">Measure 5.13. Students' SR&ED activities</td></tr>
<tr><td colspan="2">Measure 5.8. Attraction of foreign scientists and R&D activities</td><td>Measure 1.4. Support to international patenting of inventions and design (InoPatentas LT)</td></tr>
<tr><td>Measure 5.16. Development of science popularisation system</td><td rowspan="8">-</td><td>Measure 4.3. Implementation of market-oriented research and business projects through cross-border network</td></tr>
<tr><td>Measure 5.17. Financing first- and second-cycle studies and integrated studies not offering degrees</td><td rowspan="8">-</td></tr>
<tr><td>Measure 5.18. Supporting mobility of Lithuanian and foreign students and lecturers</td></tr>
<tr><td>Measure 5.19. Practical training for scientists and other researchers, participation of scientists and other researchers in the earmarked events of the international programmes, participation of Lithuanian researchers in earmarked meetings dedicated to preparation of project applications, participation of Lithuanian representatives in the European Union and other international working groups, committees, commissions related with scientific research and experimental (social and cultural) development. / Promotion of participation in H2020</td></tr>
<tr><td>Measure 5.21. Supporting intersectoral cooperation in the SR&ED field</td></tr>
<tr><td>Measure 5.22. Providing the researchers with access to digital resources of scientific data</td></tr>
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Measure 4.1. Establishment and development of a material base for implementation of co-projects of research and business at the higher education and research institutions (establishment and development of the infrastructure of competence centres)				
Measure 4.2. Support of implementation of R&D activities carried out by competence centres				