



Polytechnic Institute of Viana do Castelo

Center for Research and Development
in Agrifood Systems and Sustainability

PLAN OF ACTIVITIES 2022

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SUMMARY

The purpose of this document is to systematize the set of activities to be carried out by CISAS during the year 2022 considering the contents specified in the financing application proposal submitted to the Foundation for Science and Technology (FCT) in 2018, adjusted to project financial budget approved in March 2020, including base (UIDB/05937/2020) and programmatic (UIDP/05937/2020) funding, and to the financial execution that took place in year 2021 and the expected outputs for 2022.

As it was previewed, impacts caused by COVID-19 were felt also in 2021, but due to the former experience of 2020 pandemic constraints, we were now able to anticipate scenarios of contraction of scientific production and investment, as well as outlining alternative strategies that allowed the work to continue as well as raising awareness of the importance of innovation and digital communication.

1. Introduction

CISAS Research Unit's Activity Plan for the year 2022 to be presented should be aligned with the contents specified in the financing application proposal submitted to the Foundation for Science and Technology (FCT) on the 9th of February 2018, adjusted to the 2020-2023 funding approval in December 2019, comprising a base funding of 198,400.00 € (UIDB/05937/2020) and programmatic funding of 355,000.00€ (UIDP/05937/2020), whose pluriannual distribution was approved in the contract signed in 3rd of March 2020, and to the financial execution and budget distribution approved so far.

In the aforementioned original proposal, it is mentioned that CISAS implementation program foresees 3 distinct stages, however complementary, where internationalization is an important goal, reinforcing the strategy to promote mobility programs, increase the participation in projects, societies and publications and the involvement in doctoral programs.

It is considered that in 2022 we still are at the second stage - Affirmation (2021-22), intended to: i) Stimulate scientific publications; ii) increase the number of HR financing (post)doctoral grants, scholarships to support R&D activities in parallel with the leverage protocols, and contracts for specialized services; iii) increase the number of researchers and undergraduates to stimulate coordination and integration between the work areas; iv) increase the number of publications in terms of quantity and quality of the output in peer-reviewed journals. Scientific events (seminars, lectures, exhibitions, workshops) will be also promoted. In the last phase, "excellence", 2022-23, intends to increase the number of researchers and undergraduates, the coordination and integration between the work areas, the integration in international research networks reinforcing the quality of scientific publications, patents, and knowledge transfer.

Thus, to accomplish the activities originally previewed for 2022 under the "affirmation" stage and starting the "excellence" stage, CISAS aims for 2022 are presented in the following chapter.

2. Objectives for 2022 affirmation and excellence stages

The year 2022 correspond to the 3rd year of implementation of the 2020-2023 pluriannual financing program. Despite of the COVID-19 impacts most of the activities previewed for the "organization" stage has been fully implemented during 2021. CISAS Advisory Board in 2021 report recommendations for the coming years, such as the description of the main CISAS groups and the composition and main thematic of each one, the implementation of strategies to stimulate researchers to publish in high impact journals, and the promotion of more communication events in English to engage and disseminate CISAS research to the international partners, that are also envisaged in this Plan. In this context, to end the implementation of the "affirmation" stage, and simultaneously to accomplish with what was expected for the "excellence" stage, also considering the Advisory board recommendations, the following objectives are foreseen for 2022 year:

1. To stimulate coordination and integration between the groups' areas and inhouse communication
2. To consider the quality indicators of the publications in the merit awards criteria
3. To increase the number of researchers and undergraduates

4. To organize communication events in English to engage and disseminate CISAS research internationally
5. To promote the transference of knowledge and technology

3. CISAS Activities 2022

To pursuit the aforementioned objectives the following activities will take place:

1. The reorganization of CISAS research groups and respective thematic lines will be performed in January 2022.
2. To launch an organized newsletter for inhouse communication of internal or external events and funding opportunities within CISAS starting on January, on a weekly basis.
3. Keeping applying to national funding program for R&D, and reequipment, and masters and PhD grants to support R&D activities.
4. Seeking to the integration in international research networks enabling the establishment of consortia for international project funding opportunities.
5. The attribution of Research Grants (BI) and Research Initiation Grants (BIC) through ongoing research activities of R&D projects funding including the FCT program “Verão com Ciência” will take place.
6. Attributing and distributing budgets to CISAS members who accomplish the merit criteria adjusted now by including the differentiation of quality indicators of the publications such as Quartile, citations, interaction co-authors, position of CISAS authors in publication aiming to improve the impact of the publications.
7. The organization of national and international seminars for sharing the results of ongoing R&D activities, having plenary speakers of international relevance, will take place.
8. Knowledge transference strategies will be promoted by applying to tailored financed initiatives.
9. Potential innovative niches of research within CISAS stakeholders will be explored.
10. Training actions on searching for patents, applying for a patent and patents laws will be available to CISAS members.

4. FCT pluriannual budget 2020-2023

The accounting balance of FCT base and programmatic budgets, regarding to consulting, missions, acquisition of goods and services and other expenses that took place in 2021 and the previewed for 2022, the distribution of the budget was adjusted as shown in Tables 1 and 2. The Activity Plan, according to CISAS regulation, must be presented yearly until the end of November therefore, executed expenses in 2021 still uncomplete by the date of its presentation. Thus, the distribution of the budgets placed in 2021 is not definitive once it depends on the effective payments due to December 2021. The final accounting balance of 2021 FCT base and programmatic funding will be presented in CISAS 2021 report on February 2022.

Thus, the accounting balance of FCT base funding in 2021 presented in Table 1 corresponds to the expenses executed and sent to FCT in July 2021 plus the post-doc grant of 5 months (August to December, included), 2 months of a PhD student grant within the activity “Thermography in the evaluation of the water status of “Alvarinho” and “Loureiro” grape varieties” and 5 months

of a master student grant within the research activity “Productive performance, meat quality and animal welfare in the Portuguese autochthonous breed: White chicken”. In RH budget for 2022 base funding (Table 1) are considered the 12 months of the post-doc grant and 1 month of the master’s student grant already running in 2021.

Two other master’s student grants are expected to start in 2022 within two CISAS activities internally funded “Identification of root-disease-suppressive microorganisms in compost from viticulture residues” and “Application of pulsed electric fields in foods”.

In the original FCT contract CISAS there was no budget for publications fees (Demonstration, Promotion and Dissemination- DPD, Table 1). Thus, in November 2021 it was requested to FCT permission to add to this budget 15 thousand euros from Missions budget, which was approved (Table 1). The distribution of this budget will be also adjusted in CISAS report next February.

TABLE 1. FCT pluriannual funding 2020-23 - Base (UIDB/05937/2020)

Current expenses		2020	2021	2022	2023	Total
Recursos Humanos (RH)	62 276,04 €	8 286,30 €	8 080,00 €	25 151,06 €	20 758,68 €	62 276,04 €
Missões no país e estrangeiro (M)	32 000,00 €	899,72 €	1 100,28 €	7 500,00 €	7 500,00 €	17 000,00 €
Consultores nacionais ou estrangeiros (C)	13 563,59 €	- €	4 521,20 €	4 521,20 €	4 521,19 €	13 563,59 €
Aquisição de bens e serviços (AQ)	47 880,37 €	2 976,08 €	14 960,12 €	14 960,12 €	14 984,05 €	47 880,37 €
Registo nacional e no estrangeiro de patentes (P)	3 000,00 €				3 000,00 €	3 000,00 €
Adaptação de edifícios e outras instalações (AE)	- €					- €
Encargos Gerais (EG)	39 680,00 €	3 040,53 €	7 165,40 €	14 533,10 €	14 940,98 €	39 680,00 €
Demonstração, Promoção e Divulgação (DPD)				6 000,00 €	9 000,00 €	15 000,00 €
Outras despesas correntes						- €
Equipamento (E)						
TOTAL	198 400,00 €	15 202,63 €	35 827,00 €	72 665,48 €	74 704,90 €	198 400,00 €

In the Programmatic funding (Table 2), RH budget it is considers the 9 months of salary of the PhD contract (April to December 2021, included) and the following years 2022 and 2023.

TABLE 2. FCT pluriannual funding 2020-23- Programmatic (UIDP/05937/2020)

Current expenses		2020	2021	2022	2023	Total
Recursos Humanos (RH)	121 895,00 €	4 644,76 €	28 831,88 €	38 086,07 €	50 332,29 €	121 895,00 €
Missões no país e estrangeiro (M)	5 000,01 €		1 666,67 €	1 666,67 €	1 666,67 €	5 000,01 €
Demonstração, Promoção e Divulgação (DPD)	- €	- €	- €	- €	- €	- €
Aquisição de bens e serviços (AQ)	124 105,00 €	3 189,96 €	11 035,00 €	21 035,00 €	18 845,04 €	54 105,00 €
Outras despesas correntes	3 999,99 €	3 000,00 €	333,33 €	333,33 €	333,33 €	3 999,99 €
Equipamento (E)	100 000,00 €			136 533,34 €	33 466,66 €	170 000,00 €
TOTAL	355 000,00 €	10 834,72 €	41 866,88 €	197 654,41 €	104 643,99 €	355 000,00 €

In the original FCT contract for programmatic funding the budget *Equipment* has 100 thousand euros. In the original proposal description, the equipment specifically considered included an Inductively coupled plasma mass spectrometry (ICP-MS) and sensors for remote sensing allowing the characterization of plots, the identification of diseases and pests, and the evaluation/quantification of water content in the soil. The ICP-MS costs in 2021, are now estimated in 106 thousand euros plus 23% IVA, which overtakes the original *Equipment* budget of 100 thousand euros.

Fortunately, Portuguese State Budget 2021 (Law nº 75-B/2020) allowed the VAT refund of Equipment and consumables within R&D activities of Higher Education Institutions. However, as at present ESA labs do not have conditions to setup the ICP-MS, this acquisition is expected only to occur in 2022. The previewed sensors will be also acquired in 2022.

Nevertheless, a reinforcement of *Equipment* budget was considered necessary for buying the equipment to accomplish the research activities plan of the post-doc recruitment, which implies

the acquisition of an inverted light microscope, a cell culture chamber and a FTIR spectrometer. Thus, it was asked permission to FCT to move 70 thousand euros from *Acquisitions of goods and services* (AQ) budget to the *Equipment* budget of Programmatic funding (Table 2). The budget for AQ had an overall budget of 171 985,37 € (124.105,00€- programmatic funding; 47.880,37€- Base funding). Will keep the overall budget of 101 985,37 € in AQ, which seems to us to be sufficient to stand the expenses of the whole funding period.

CISAS, in 2021, became an associate of the ISEKI Food Association which are also considered in the AQ budget. CISAS in 2021 also became a member of RIESDM (Rede das Instituições de Ensino Superior para a Salvaguarda da Dieta Mediterrânica) without association fees. Within it CISAS will be coordinating the action “Preservation of autochthonous breeds”.

5. R&D Projects funding in 2022

The ongoing projects in 2022, involve an IPVC budget of € 3 027 284,88, are shown in Table 3.

TABLE 3 - CISAS-IPVC 2022 R&D ongoing projects	PERIOD	FUNDING (€) IPVC	Funding Entity	National/International
Maçã- Estratégias de proteção fitossanitária para a produção sustentável da maçã	2017-2022	33 705,39	PDR2020	national
BioPest-Estratégias integradas de luta contra pragas-chave em espécies de frutos secos	2017-2022	34 044,41	PDR2020	national
GesPSA Kiwi- Ferramenta Operacional para gestão sustentável do cancro bacteriano (Psa) da Actinídea	2018-2022	148 251,56	NORTE2020	national
Minho – Região Europeia da Gastronomia	2019-2022	172 620,50	NORTE2020	national
BEYONDSCALE: Developing the organizational capacity of higher education institutions using the innovative platform to facilitate peer learning and a pan-european community of practice	2019-2022	51 226,00	ERASMUS+	international
Go GISA- Gestão Inteligente de Sistemas Agropecuários	2020/2023	32 936,15	Grupo operacional - Madeira	national
S4Agro - Soluções Sustentáveis para o Setor Agroindustrial	2020-2023	142 576,80	COMPETE2020	national
BIOMA-Soluções integradas de BIOeconomia para a Mobilização da cadeia Agroalimentar	2020-2023	390 741,07	COMPETE2020	national
TECH - Technology, Environment, Creativity and Health - Line of Research 2	2020-2023	442 505,23	NORTE2020	national
TECCo+Lab - Rumo a um laboratório de testes Covid19 mais eficiente, abrangente e colaborativo	2020-2023	364 346,44	SAICT NORTE2020	national
GREENHEALTH - Estratégias digitais e baseadas em ativos biológicos para melhorar o bem-estar e promover a saúde verde	2020/2023	70 000,00	NORTE2020	national
Refill_H2O	2021-2022	130 412,14	EEA Grants	international
Stop Suzukii	2021-2023	78 907,81	POCI_FEDER	national
Soil-Recon: Soil Ecosystems in the XXI Century: pressures, conservation and future scenarios	2021-2024	248 644,25	FCT	national
NUTRIR - Núcleo Tecnológico para a Sustentabilidade Agroalimentar	2021-2023	500 467,79	NORTE2020	national
PICAR- Functionalization of meat cured products with maritime pinebark extracts (Pinus pinaster subsp. Atlantica)	2021-2023	185 899,34	COMPETE2020	national
TOTAL BUDGET IPVC		3 027 284,88		

Within some of these projects, recruitment of PhD graduated researchers took place in 2021 and will be ongoing in 2022:

1 PhD - TECH – Technology, Environment, Creativity and Health – Line of Research 2. 1 PhD student grant, plus one MSc Student’ Research (BII) and one Research Initiation Grants (BIC);

3 PhD - NUTRIR - Núcleo Tecnológico para a Sustentabilidade Agroalimentar, 2 already recruited and 1 expected to be recruited in 2022, plus one Research Initiation Grant (BIC);

1 Post-doc - Soil-Recon: Soil Ecosystems in the XXI Century: pressures, conservation and future scenarios.

In 2021, 11 project proposals were submitted to various funding programs as shown in Table 4. Within the 5 that are still waiting for approval, 3 are international.

Table 4. CISAS SUBMITTED PROJECT PROPOSALS TO R&D FUNDING CALLS IN 2021		
Title	Funding	Status
Blue Project	EEA Grants	Waiting for approval
ProtFrog	EEA Grants	Waiting for approval
BacSURVEY_Surveillance of plant biohazard bacterial populations by third generation sequencing	FCT	Not approved
Breakthrough on Three-Way Biological Novel Promising Strategies to Control the Kiwifruit Bacterial Canker Disease	FCT	Not approved
ECOEDUSERVICES	H2020	Not approved
EUFOOD4ALL	H2020	Not approved
PROTEGE	POAT	Not approved
FASMED	PRIMA	Not approved
FEAST - Food systems that support transitions to healthy and Sustainable diets	Horizon Europa	Waiting for approval
PAT TECH	04/SIAC/2021/POCI	Waiting for approval
Infinifish- Pacto de Inovação Portugal Blue Food	Agendas verdes Aviso n.º 01/C05-i01/2021	Approved in stage 1; last decision in 2022

The research activities carried out by CISAS researchers within ongoing and expected approved 2022 projects, will increase the number of participations in scientific conferences, either externally or internally organized, as well as the number of publications in 2022 and following years.

6. Stimulating scientific productivity- Credits and criteria

In 2021, the statutes of CISAS were adjusted to the new IPVC Statutes and approved by the CISAS Scientific Council. CISAS Financing Regulation must be now adapted according to the new CISAS Statutes.

As it is proposed for 2022 to include the quality criteria of publications in merit awards, the credits related to scientific productivity of Annex 1 of the Financing Regulation will be adjusted to this purpose. Therefore, the distribution the IPVC annual funding, to be applied in research activities and respective outputs, will be performed according to CISAS new Financing Regulation.

7. CISAS previewed outputs – 2022

CISAS previewed outputs aimed for 2022 are shown in Table 5 below.

Table 5. CISAS previewed outputs - 2022	
Activities	AP 2022
Publications	
Books/book chapter	30
Articles in international indexed journals	40
Articles in national journals and technical journals	25
Communications in congresses/seminars	
Oral presentation	
International	28
National	50
Poster presentation	
International	30
National	30
Congresses/seminars organization	
International	1
National	5
R&D new running projects	
International	3
National	2
Contracts for specialized services	6
Master's thesis completed	20
Grants running in 2022	
PhD Students	5
Postdoc	2
Master Students	4
PhD Contracts	5