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National Research Programme for Environmental and Occupational Health
2025 Call for Proposals

Deadline for submitting letters of intent: 10 December 2024
Deadline for submitting complete proposals: 25 March 2025

Please note that in the case of any discrepancy between the English and French versions of this document, the French version shall prevail.

I. OVERVIEW OF THE PROGRAMME

The French National Research Programme for Environmental and Occupational Health (PNR EST) is financed by ANSES with funds from the Ministries in charge of the environment, labour, health and agriculture, and also involves several co-funding partners[1], including ADEME and ITMO Cancer from the AVIESAN Alliance. For this 2025 edition of the PNR EST, additional funding will be allocated by the Ministry in charge of the environment to finance research projects on endocrine disruptors. Moreover, further funding from the Ministry in charge of the environment will finance projects on the health effects of radiofrequencies.

The PNR EST promotes knowledge production in support of public policymaking for environmental and occupational health and safety, for the benefit of public health, and contributes to its dissemination to stakeholders. This programme has a leading role in fostering interactions within the scientific community, which helps ANSES mobilise researchers for its collective expert appraisals of health risks.

Through this programme, calls for research proposals are issued. Two calls will be funded in 2025: this one, of a general nature, covering a wide area, and a second call dedicated to the theme "radiofrequencies and health".

[1] This specificity plays a significant role in determining the way projects are selected, with regard to the criterion "impact on public policies". Project coordinators are advised to consult Annex I.

II. OVERVIEW OF THE CALL FOR PROPOSALS

This call for research proposals (CRP), issued each year, aims to motivate scientific communities to conduct research on environmental and occupational health topics, and to develop new methods and tools at all stages of risk assessments for health or ecosystems, particularly in order to document research issues raised by the relevant ministries and government agencies. Particular interest is paid to research topics whose results can be used rapidly by public policymakers and will lead to sustainable progress in the area of human health, in the general population or in the workplace, or in the preservation or restoration of different ecosystems.

These research projects should be able to contribute to a better understanding of issues that are now identified as priorities, taking the "one health" approach into account, in particular: multiple exposures to environmental and occupational factors, characterisation of the exposome and its effects on health, particularly in the long term, the impact of climate change and biodiversity loss, the use of new technologies, changes in lifestyles and work organisation, and health inequalities. They should also be able to respond to the need to develop risk assessment methods, including the integration of socio-economic dimensions and systemic approaches, as well as impact assessment methodologies such as multi-criteria analysis, which is particularly useful for the regulatory framework.

Research projects are selected based on their originality and scientific quality and should strengthen knowledge, in particular, on critical points in the assessment or management of risks to the health of humans or ecosystems, with the ultimate goal being to inform decision-makers in support of public policymaking in the field.

At the national level, this call for research proposals supplements other calls published since 2024. These include:

- ANR calls for proposals (see the ANR 2024 action plan),
- Ecophyto calls for proposals,
- EcoAntibio calls for proposals,
- ADEME calls for research proposals:
  - https://www.ademe.fr/recherche-innovation,
  - Call for thesis applications: opened in the first quarter of 2025.

III. SCOPE OF THE CALL FOR PROPOSALS

The programme concerns the assessment and analysis of environmental risks to human health, in the general population or in the workplace, as well as risks to ecosystems or to the quality of different environments.

The scope of the CRP covers a wide range of risks from known through to emerging risks, including complex risks that are scientifically controversial. The topics covered by the CRP in 2025 are listed in Annex 2. Each of them is accompanied by a list of research questions of interest to potential users of the research results, who can refer to them during risk assessments or when developing risk prevention and management measures.

The programme seeks to stimulate original, multidisciplinary research projects that address one or more of these research questions.

- It is open to researchers working in the human and social sciences, biological and health sciences, physical and chemical sciences, engineering and environmental sciences.
- Proposals combining multidisciplinary approaches are encouraged, especially those including human and social science approaches[2].
- Similarly, approaches that study both the impacts on ecosystems and the effects on health, with a "one health" approach, are encouraged.
- The programme excludes studies on food in the strict sense (including beverages and drinking water), apart from the study of contaminants to which humans may be exposed by this route.

The call for proposals also encourages researchers to:

- use data made available to research communities according to the FAIR principles: biobanks, databases from national or international biomonitoring studies, health data collected by occupational health services, registers, databases on contamination of the environment (water, air, soil), food and drinking water, etc.
- include the "One Health" concept in their approach.
- take gender into account in the studies.
- develop approaches that take uncertainty and the weight of evidence into account.

[2] https://www.anses.fr/en/content/social-sciences-anses

IV. PROPOSAL CHARACTERISTICS

Proposals shall be designed as research projects with a clearly identified goal and duration. This excludes projects that may only appear as contributions to larger research programmes and projects without specific deliverables identified on conclusion of the work.

These research projects may be conducted by a single team or a consortium involving several partners. Each team shall have a clearly identified scientific leader. The project shall be presented as a single proposal, with its coordinator being the scientist in charge of one of the teams. The funding is sought to complete the project. The rules are set out in Annex 3.

The partner teams undertake to comply with the principles of scientific integrity and ethics of the French Charter of Ethics for Research Professions.

Two types of research projects are expected:

Feasibility studies:

Their purpose is to explore an innovative approach whose feasibility has not yet been established.

- Funding shall not exceed **€50,000**.
- The maximum duration for such a study is two years.

Complete projects:

These rely on an established methodological approach so that there is a reasonable level of assurance that the objectives will be met.

- Financial support will lie **between €40,000 and €200,000.** These limits may only be exceeded under exceptional circumstances if required by the project's nature and provided the request is justified in relation to the assessment criteria.
- The duration for a complete project will be between two and three years.

V. SELECTION PROCEDURE

The selection procedure relies on two committees:

- The research programme's scientific committee (CSPR). It is made up of renowned researchers. The CSPR is responsible for the scientific evaluation of the submitted projects.
- The research programme's steering committee (COPR). It is made up of funding bodies[3] and ministries involved in the scope covered by the call, as well as the ANR. The COPR ensures, in particular, the choice of projects to be funded from the list drawn up by the CSPR.

The selection process of the call for proposals will be divided into two stages as defined below:

- an initial selection on the basis of letters of intent,
- a second selection based on complete applications, from among the shortlisted letters of intent.

The submission timetable and terms are described in Section IX.

Step 1: Selection from among the letters of intent

Letters of intent that do not meet the eligibility criteria defined in Section VI will not be evaluated. The CSPR will assess the letters of intent, taking into account the scientific assessment criteria defined in Section VII. Members of the COPR may also be consulted regarding the third assessment criterion and the alignment of the project with their priorities. Special attention should be paid to the quality of the letters of intent, which need to contain enough information, in a limited amount of space, to allow the CSPR to evaluate the relevance of the proposal. Only selected letters of intent will be eligible to submit a complete application.

Step 2: Selection from among the complete applications

To be eligible, complete proposals must meet all of the eligibility criteria described in Section VI. Applications that do not meet all of these criteria will not be evaluated. The projects will then go through the following selection process:

1. Collective scientific assessment of the projects by the CSPR, on the basis of the opinions of at least two independent experts per project, according to the criteria described in Section VII. A list of projects will then be submitted to the COPR.

[3] As defined in Annex 1

2. Collective opinion of the COPR on the funding for projects shortlisted by the CSPR. This collective opinion also takes into account the budgets and priorities of the funding bodies concerned, which are highlighted in the research questions in Annex 2. The COPR may also give an opinion on the appropriateness of the requested funds with regard to the planned tasks. Under exceptional circumstances, it may recommend changes to projects, or even groupings, if these allow the integration of several approaches or disciplines likely to improve the project's overall quality and relevance in relation to the programme's objectives.
3. The final decision to support a project is made by the funding bodies. The list of selected projects and the funding bodies' identities is published on the ANSES website at the end of the selection process.

VI. ELIGIBILITY CRITERIA

A project's eligibility will be examined at both selection stages, firstly through the letter of intent and secondly through the complete application, on the basis of the information available at each stage. Research projects must meet the same conditions at each stage:

Proposal characteristics

1. The project must lie within the scope of the call for proposals as defined in Section III.
2. The proposals' characteristics must be compatible with those listed in Section IV.
3. The project must not contain actions that have already been funded under another call for proposals. If there is any ambiguity, project coordinators should describe which parts of the project interact with other sources of funding.

Conditions regarding the participating teams

1. The partnership must be clearly identified at the letter of intent stage.
2. This call for proposals is open to all research teams, irrespective of the institution to which they belong[4] (higher education and research establishments, research organisations, other public establishments with a research mission, technical centres, private establishments with R&D activity, etc.). Partners other than research teams are welcome insofar as their added value in the project is clearly established.

[4] Regarding the eligibility of ANSES teams, refer to the recommendation of its Ethics Committee https://www.anses.fr/fr/system/files/DEON-Ft-2013003.pdf

3. The project must involve one French academic partner (higher education and research establishments, research organisations, other public establishments with a research mission, private healthcare establishments of collective interest, foundations and associations conducting work of interest and recognised as being of public utility or acting within the framework of public policymaking, and research players).
4. The call for research proposals is open to foreign teams or to teams from international organisations. To facilitate foreign partnerships and the independent appraisal of projects, the text of the CRP is available in English on the ANSES website and applicants are encouraged to write their proposals in English.
5. A CSPR member cannot hold any responsibility in a project (scientific leader of any team involved in the research project).

Administrative conditions

1. Letters of intent and complete applications must be submitted in accordance with the terms listed in Section IX. They must contain all of the requested information and be submitted by the deadline.
2. The project must be authorised by the institutional leader of the coordinating research team and by the manager of each partner team.

VII. CRITERIA FOR THE SCIENTIFIC ASSESSMENT OF PROJECTS

A project will be examined at both selection stages, through a letter of intent and then a complete application, on the basis of the information available at each stage. The assessment criteria are as follows:

Letter of intent stage

Letters of intent are reviewed according to the following four criteria:

1) The subject's scientific significance for the research topics of environmental health and/or occupational health and/or risks for ecosystems. Impact on French public policies.
2) Scientific originality: proposals shall be justified with regard to research undertaken at French, European and international levels.
3) Connection to the research questions. The considerations mentioned in the "Research questions" (Annex 2) will play an important role in the prioritisation of projects, particularly by the COPR.
4) Methodological quality, in particular, relevance of the choice of methods and scientific feasibility.

Complete application stage

Projects are assessed based on the following criteria:

1) The subject's scientific significance for the research topics of environmental health and/or occupational health and/or risks for ecosystems. Impact on French public policies.
2) Scientific originality: proposals shall be justified with regard to research undertaken at French, European and international levels.
3) Connection to the research questions. The considerations mentioned in the "Research questions" annex will play an important role in the prioritisation of projects, particularly by the COPR.
4) Methodological quality, in particular, relevance of the choice of methods and scientific feasibility.
5) Organisational and partnership excellence (the project must include a provisional project timetable).
6) Consortium excellence. Scientific output of the applicants, in particular of the coordinators, distribution of activities among teams.
7) Appropriateness of the project duration and allocated resources (financial request, human investments). Quality of the supervision of non-permanent staff.
8) For projects that could be a subject of scientific controversy, measures adopted to ensure the quality of the results (e.g. traceability of data, provision of information that could be used to reproduce experiments or analyse data, inter-partner trials, multiple points of view held by partners, involvement of stakeholders in methodological design, participatory sciences, etc.).

VIII. AGREEMENT

The funding terms for the selected projects will be specified in the agreement between the funding body and the coordinator's establishment (or the establishments involved in the project, for funding by ADEME). The main rules are listed in Annex 3.

For all funding bodies, in exchange for financial support, the research teams shall:

- commit to participate in actions to promote the results obtained during and/or at the end of the project (publications in peer-reviewed journals, presentations at conferences organised by the funding body, contribution to summary reports, etc.);
- for complete projects, supply a mid-term report and, in all cases, at the end of the project, a final complete report and a public scientific summary that can be used by ANSES and the funding body in their missions;

- mention the support provided by the National Research Programme for Environmental and Occupational Health and the funding body on appropriate occasions, in particular in publications, as stipulated in the agreement.

As part of the implementation of the joint declaration by the network of French funding agencies to promote open science, the coordinators and partners undertake, if they receive funding, to:

- guarantee immediate free access to scientific peer-reviewed publications by depositing the scientific publications resulting from the project funded under this call for proposals in HAL (full text), under the conditions of Article 30 of the Digital Republic Act (Article L533-4 of the French Research Code)[5];
- facilitate the sharing and reuse of research data, especially for data relating to publications, by providing a Data Management Plan (DMP) within six months of the start of the project, according to the conditions set out in the research agreement, and then provide an updated version of the DMP at the end of the work period.

In addition, ANSES recommends giving priority to publication in full open access journals or books[6].

Lastly, in accordance with the Second National Open Science Plan, ANSES recommends that the software developed during the project be made available under an open source licence[7] and that the source codes be stored in the Software Heritage archive[8] with a reference made to ANSES funding.

Considerable importance is attached to the rigour with which the project coordinator leads the project, which means that the contractual commitments for the timing of deliverables should be fully respected.

[5] In accordance with Article 30 of the Digital Republic Act (Article L533-4 of the French Research Code), by submitting a proposal to ANSES, authors have exercised their right to make the final version of their manuscript accepted for publication available free of charge in an open digital format.

[6] The DOAJ website (https://doaj.org/) lists scientific journals whose articles are peer-reviewed and open access. The DOAB site (https://www.doabooks.org/) does the same for monographs.

[7] https://opensource.org/licenses

[8] https://www.softwareheritage.org

IX. PROJECT SUBMISSION TERMS

- Submission of letters of intent

Letters of intent must be submitted online by the project coordinators no later than 10 December 2024 at noon (12:00), French time. Projects shall be submitted using the Iris platform available via the ANSES website. The platform will be operational in mid-October 2024.

It is important to carefully read the eligibility rules listed in this call for proposals, including at the letters of intent stage. All compulsory sections must be completed before the deadline, as incomplete applications will not be considered. Applicants are therefore advised to prepare in advance.

The letters of intent will then be evaluated and the project coordinators will be informed of the result (authorised to submit a complete project or not) by email.

- Submission of complete application

For those whose letters of intent are shortlisted, complete applications must be submitted online on the same platform by the project coordinators no later than 25 March 2025 at noon (12:00), French time.

All compulsory sections must be completed before the deadline, as incomplete applications will not be considered. Applicants are therefore advised to prepare in advance.

Provisional key dates

Early October 2024	Opening of the call
Mid-October 2024	Opening of the platform for letters of intent
10 December 2024 at noon	Deadline for submitting letters of intent
Mid-February 2025	Project coordinators informed of the first selection results, based on the letters of intent
25 March 2025 at noon	Deadline for submitting complete applications
September 2025	Project coordinators informed of the COPR's results on final selection

X. CONFIDENTIALITY

Members of the CSPR, as well as experts consulted for the scientific evaluation of projects, are subject to strict confidentiality regarding the content of the projects submitted to the call.

Funding bodies and state agencies serving on the COPR are also bound to strict confidentiality on the content of submitted projects. For mapping purposes or to manage multiple funding requests, however, they may share information on the laboratories or organisations active in the research topics covered by this call for proposals.

For projects not selected for funding, the files will remain confidential.

For projects selected for funding, the research content will be kept confidential. However, ANSES will publish the summary of each project as submitted to this call for proposals, along with the names of the partners. In addition, each funding organisation that is a signatory to the agreement with the managing organisation appointed by the project coordinator may use this work for its internal needs according to the terms defined in the agreement. Finally, the scientific reports issued on completion of the work will be submitted to the reviewers, who will therefore have access to their content.

For further information, please contact recherche@anses.fr.		
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ANNEX 1: Funding bodies

ANSES and its co-funding partners for the call for proposals are seeking to implement their research priorities in a common framework, thereby improving this programme's visibility and transparency to the relevant scientific communities.

I. ANSES

The French Agency for Food, Environmental and Occupational Health & Safety is an administrative public establishment accountable to the French Ministries in charge of health, agriculture, the environment, labour and consumer affairs.

Its principal mission is to contribute to the protection of human health with respect to the environment, the workplace and food. It also helps to ensure:

- protection of animal health and welfare;
- protection of plant health;
- assessments of the nutritional and functional properties of foods.

Lastly, it conducts missions relating to veterinary medicinal products.

ANSES's work takes place at the interface between human, animal and plant health, according to a "One Health" approach. The vast scope of its activities has led the Agency to adopt a comprehensive view of health threats to living organisms and ecosystems. It has developed an interdisciplinary approach to assessing the risks of today and anticipating those of tomorrow.

ANSES undertakes independent and robust scientific expert appraisals. Its work is used for public decision-making in response to societal concerns and situations of uncertainty. Moreover, within its sphere of competence, ANSES conducts and funds research in conjunction with the French and international scientific communities. It advances scientific knowledge and methods in order to better protect human, animal and plant health.

In its role as a funding body, the Agency defines and implements scientific and technical research programmes, particularly through the National Research Programme for Environmental and Occupational Health (PNR EST). These research programmes contribute to its missions in the areas described below.

In the field of environmental health, ANSES assesses the impact of the environment on health, so as to better identify health risks associated with the living environment (air, water, soil) or with physical agents (fields and waves). The Agency therefore intervenes on major issues (exposure to biological, chemical and physical agents, electromagnetic fields, cancer and the environment, etc.) in order to provide society and the public authorities with the latest scientific knowledge at all times. The

research needs are indicated in ANSES's opinions and reports, which are available on the Agency's website.

The Directorate General for Health (DGS) of the Ministry in charge of health supports the PNR EST, in particular with a view to funding projects related to human health in the general population, in order to gain a better understanding of exposure (including human biomonitoring) and the impact of the environment on health, including mental health. This financial support for the PNR EST is in line with the Fourth National Environmental Health Action Plan (PNSE 4), led jointly by the Ministries in charge of health and the environment.

In the field of occupational health, ANSES's primary mission is to provide the authorities with the information needed for making decisions on occupational risk prevention and to support the main public policies in this area. The Agency provides scientific knowledge useful for the formulation of national and European regulations, and develops reference values to protect workers.

Since 1 January 2018, ANSES has been entrusted with providing risk assessment expertise and scientific and technical support in the field of vectors, at the request of the Ministries in charge of health and agriculture. A number of research projects on this topic may be funded by the PNR EST, mainly as part of the support provided by the Ministry in charge of agriculture's Directorate General for Food on the "vector control" topic, primarily in the fields of animal and plant health.

II. FRENCH MINISTRY IN CHARGE OF THE ENVIRONMENT

The Ministry delegates funding for the research programme led by ANSES from the budgets of the Research & Innovation Department. The PNR EST is the descendant of the Environment & Health programme that was launched by the Ministry in charge of the environment and delegated to AFSSE when it was created in 2002. This budget gives the programme a broad spectrum in the field of environmental health. In addition to ANSES's missions, the Ministry in charge of the environment also aims to ensure that research addresses emerging issues, in order to anticipate and act in support of the Ministry's public policies. ANSES's programme and activities for leading and promoting the research it undertakes contribute to this objective.

In this respect, the fourth National Environmental Health Action Plan 4 (PNSE 4), co-led by the Ministries in charge of the environment and health and published on 7 May 2021, includes a significant research component. By integrating the "One Health" approach, its objective is to better characterise the human and environmental exposome, improve knowledge of its effects on health, and better understand the links between society, biodiversity, ecosystem functioning and the emergence of zoonotic infectious diseases. Research projects that integrate issues of multiple exposure and the exposome will help address the challenges of this plan.

The Ministry in charge of the environment is a major contributor to the funding of this call for proposals on many questions. Its choices are determined by its scope of action. The Ministry's responsibilities include health risks related to chemical and physical agents, as well as risks to ecosystems. However, it does not deal with risks associated with food and drinking water, which are the responsibility of the Ministry in charge of agriculture and the Ministry in charge of health, respectively.

III. FRENCH MINISTRY IN CHARGE OF LABOUR

The Ministry in charge of labour considers occupational health research as one of its priority themes through its fourth Occupational Health Plan 2021-2025, with its third strategic goal "to adapt occupational health policy to the challenges of today and tomorrow". It aims to mobilise the scientific community on research questions related to assessing occupational risks to worker health.

As a co-funding partner of the National Research Programme for Environmental and Occupational Health led by ANSES since 2005, the Ministry in charge of labour aims, through the research questions it proposes, to deepen and extend knowledge of factors that impair the physical or mental health of workers, and to better prevent health risks in the workplace.

The priority topics that may be financed in response to the research questions for the 2025 call are studies designed to:

- identify/evaluate toxicological mechanisms that are still little known but have a high probability of occurrence in an occupational context (example: multiple exposure);
- identify/evaluate occupational health risks that are known or emerging but in sectors that are not well documented (for example: the non-auditory effects of noise for workers exposed via their workplaces, the exposure of workers to low frequencies, or a chemical agent that has not yet been widely studied in the context of occupational risks);
- develop innovative analytical techniques to facilitate/clarify the monitoring of occupational exposure (e.g. new biomarkers for medical monitoring);
- develop innovative techniques to facilitate/clarify the prevention of occupational health risks (examples: substitution of chemical agents, new collection systems, etc.);
- develop knowledge on the health impacts of new technologies, new forms of work organisation, situations of insecurity, gender-based work situations, etc.;
- develop knowledge on socio-cultural barriers to acceptance of and compliance with regulations, for the sake of effective prevention, by employers as well as employees, especially in micro-businesses and SMEs.

IV. ADEME

ADEME – the French Agency for Ecological Transition – is a public industrial and commercial entity (EPIC) under the joint authority of the Ministry responsible for ecological transition, energy, climate and risk prevention and the Ministry responsible for higher education and research. It implements public policies related to the environment, energy and sustainable development. ADEME makes its expert assessment and consulting capacities available to businesses, local and state authorities, and the general public, and helps them fund projects in various areas (energy, circular economy, food, mobility, air quality, adaptation to climate change, soil, etc.) and make progress with regard to sustainable development. ADEME's activities aim to offer prioritised responses to offset the impact of environmental problems. They lead to the promotion of novel practices and new economically and socially acceptable processes. The social acceptance of projects largely depends on the safety to health and the environment of the solutions that are recommended or implemented.

ADEME's mission therefore includes assessing the environmental and health risks related to new technologies and development projects in its areas of expertise.

In addition, the Agency issues calls for proposals related to the social and environmental health impacts of human activities. In particular, it manages the IMPACTS (Impact of interactions between pollutants on humans and their environment), AQACIA (Air quality improvement: understanding, innovating, acting), GRAINE (Managing, producing and making use of biomass), GESIPOL (Research for integrated management of polluted soil) and TEES (Ecological, economic and social transitions) research programmes.

V. ITMO CANCER FROM THE AVIESAN ALLIANCE

The Alliance for Life Sciences and Health (AVIESAN) has entrusted the Multi-Agency Thematic Institutes (ITMOs) with the task of coordinating national research operators. Nine ITMOs are currently operational, including the Multi-Agency Thematic Institute for Cancer (ITMO Cancer from the AVIESAN Alliance).

The goal of ITMO Cancer from the AVIESAN Alliance is to bring together all the research teams working on different types of cancer, regardless of their affiliation. Its purpose is to propose specific actions to improve the performance and competitiveness of French research, to ensure effective coordination between all the organisations and institutions involved in cancer research, and to stimulate debate and facilitate interdisciplinary exchanges in the cancer community. It was responsible or jointly responsible for the implementation of 17 actions of the Cancer Plan III (2014-2019) including Action 12.5: "Develop observation and monitoring and improve

knowledge about cancers related to environmental exposure in the general population". It is now a major player in the ten-year cancer prevention strategy (2021-2030) to which it has actively contributed alongside the French Cancer Institute (INCa).

ITMO Cancer from the AVIESAN Alliance therefore works in partnership with the stakeholders of the various cancer research organisations in order to:

- develop a national strategic vision in the field of cancer,
- develop innovative and ambitious projects meeting a real scientific or medical need,
- organise cross-cutting contacts between thematic areas,
- coordinate the action of public research players, particularly research organisations, universities, university hospitals and funding agencies,
- strive to improve the value of research by facilitating interactions and partnerships with industry and patient organisations,
- make French research more visible and attractive on the European and international scenes.

ITMO Cancer from the AVIESAN Alliance is therefore a facilitator of cross-cutting debate and actions, and wishes to continue its financial support for the cancer and environmental exposure topic.

As part of the PNR EST call for proposals and with funds managed by Inserm, ITMO Cancer from the AVIESAN Alliance will potentially finance studies that deal with identification, mechanisms of action, effects and ways to protect against cancer risk factors (chemical, physical, biological or behavioural) in the private or occupational sphere.

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ANNEX 2: Research questions

This annex provides a list of research questions in relation to which the research projects should be defined.
These research questions should be understood as relevant to the area covered by the call as defined in Section III. Their order does not reflect any priority. However, within some topics, the questions in red are regarded as priorities. Applicants are also advised to refer to Annex 1 presenting the funding bodies.

Physical agents
Noise pollution
NSON 1. Research into the impact of the extra-auditory effects of noise on the general population and/or workers (e.g. respiratory diseases, chronobiology and sleep disturbance, cardiovascular risk, mental health, school learning, social communications). NSON 2. Research into the impact of environmental exposure to noise (on fauna, flora and biodiversity). NSON 3. Evaluation of the mental and physical health benefits of noise control measures, in particular through modulators of the effects of noise (insulation, green spaces, etc.). NSON 4. Research into the effects of compressed sound on mental and physical health.
Non-ionising radiation (from static fields to UV)
RNIO 1. Characterisation of workers' exposure to solar UV radiation according to their geographical location and the health effects in the context of climate change. RNIO 2. Characterisation of workers' exposure to artificial optical radiation (wavelength between 100 nanometres and 1 millimetre). Study of the long-term health effects of prolonged multiple exposure to artificial light (LED, blue light, etc.). RNIO 3. Research into the impact and long-term effects of artificial optical radiation on visual health, such as myopia, related to environmental factors (e.g. spectral imbalance of artificial light, endocrine disruptors, lifestyles, intensive use of screens, etc.). Research into mechanisms of action, mainly interactions between genetic and environmental factors. RNIO 4. Characterisation of worker exposure to high-intensity electromagnetic fields and electric shocks in the industrial and medical sectors (MRI, welding, inductors, etc.) and research into their direct or indirect effects on health.

Light pollution

LUMI 1. Characterisation of exposure and impacts of light pollution for the general population and the environment. Research into tools for quantifying light sources and their effects on the social behaviour of nocturnal fauna, particularly insects.

LUMI 2. Study of the combined effects of light pollution and noise on human health, particularly that of children (e.g. sleep disturbance, impact on mental health, attention disorders, etc.).

Fibres and nanomaterials

Mineral fibres

FMIN 1. Characterisation of the way spherical or fibrous particles migrate in the body for different exposure routes (inhalation and ingestion) and their impact on health, in particular their genotoxic potential.

Nanomaterials and nanoparticles

NANO 1. Characterisation, distribution and fate in environmental compartments of nanomaterials to which the general population and living organisms are exposed.

NANO 2. Assessment of human and ecosystem exposure (all routes) to engineered nanomaterials (measurement, modelling), throughout their lifecycle.

NANO 3. Ecotoxicology and toxicology of nanomaterials, including those found in formulations of plant protection products and cosmetics. In particular, consideration of the overall approach (grouping of nanoparticles and nanomaterials by class according to their physico-chemical characteristics and behaviour), development of reference materials and analytical methods.

Cancer

Studies may be based on a variety of data: clinical, biological, behavioural and socio-economic.

CANCER 1. Study of cancer risks related to environmental and/or occupational exposure to potentially carcinogenic substances, mixtures or processes (including a "lifelong" approach).

CANCER 2. Effects on humans and the environment of low doses of carcinogenic, mutagenic or reprotoxic (CMR) agents (Categories 1A and 1B of the CLP Regulation of the European Parliament) and/or cumulative exposure.

CANCER 3. Identification of environmental or occupational risk factors for cancer.

CANCER 4. Gene/environment/behaviour interactions, epigenetic mechanisms.

CANCER 5. Development of cost/benefit quantification methods applied to the prevention and/or management of cancer.

CANCER 6. Identification and/or validation of biomarkers to assess risks in environmental or occupational exposure situations.

Chemical agents

This topic encompasses all chemical agents (including plant protection products, biocides, biocontrol and cosmetics): substances authorised on their own or in formulation, metabolites and degradation products, substitutes for substances that are prohibited or whose use is restricted, persistent substances. Particular attention should be paid to perfluorinated compounds (PFASs), perchlorate, pesticides and their metabolites.

ACHIM 1. Effects of chemical agents, particularly PFASs, on ecosystems and human health: low-dose effects, cocktail effects and dose-effect relationships.

ACHIM 2. Characterisation of exposures and study, by experimental and epidemiological means, of the health impacts on the general population, in the workplace, on vulnerable, little-studied populations, according to age and gender, or socio-economic inequalities.

ACHIM 3. Consideration and characterisation of multiple exposures and co-exposures in relation to the exposome:

- 3.1. Impacts of exposure to chemicals in the workplace and in the general population (including exposure of foetuses and breastfed newborns), multiple or cumulative exposure, including via medication, to other types of hazards (physical, biological, relational, organisational, etc.).
- 3.2. *In vitro* and *in vivo* animal models; development of global "cocktail effect" indicators for chronic exposure, identification of sentinel species, study of synergistic and antagonistic effects of substances in mixtures.
- 3.3. Impacts on human health and ecosystems of co-exposures to microbiological and chemical agents.

ACHIM 4. Development of methods and tools for measuring biological concentrations in human or animal populations exposed to chemicals (in different matrices including breast milk), development of biomarkers of exposure and effects, determination of possible critical exposure windows.

ACHIM 5. Assessment of the effectiveness of measures to prevent and reduce exposure to chemical contaminants posing a risk to human health and ecosystems.

ACHIM 6. Optimisation of chemical assessment protocols: improvement and validation of methods, production of data useful for establishing health reference values (or internal toxicity reference values).

ACHIM 7. Quantification of exposure levels and impacts for different exposure routes:

- 7.1. dermal route (semi-volatile organic compounds, active substances in plant protection products and their metabolites, cosmetics, etc.) and oral route,
- 7.2. digestive route, including lactation.

ACHIM 8. Development of an *in vitro* bioaccessibility test to assess the absorption of organic compounds in the human body, and *in vivo* validation.

ACHIM 9. Improving knowledge of chemical metabolites, in particular from plant protection products and PFASs: developing analysis methodologies for their detection in the various soil/air/water compartments and in consumer products. Understanding the formation mechanisms *in natura* or during water treatment (drinking water), understanding behaviour in the environment, identifying suitable water purification treatments and generation of by-products.

ACHIM 10. Development of new toxicological tools (3D models, synthetic biology, New Approach Methodologies (NAMs)) applicable to risk assessment. Validation and limitations of the use of these models.

ACHIM 11. Characterisation of exposure levels of ecosystems for environmental biomonitoring.

ACHIM 12. Construction of tools to establish links between environmental contamination (air, water, soil, food), blood and urinary levels in human populations, and health impacts (PBPK modelling, AOPs, cross-referencing between databases, etc.) in order to identify exposure sources and routes, contamination kinetics, determinants of exposure, health effects, etc., and thus define suitable risk prevention and management measures.

Endocrine disruptors

Research questions on endocrine disruptors will focus on the impacts on the health of humans and ecosystems of all substances of interest, relating to their endocrine-disrupting activities, and for which such an effect is known, presumed, suspected or not yet identified. Research on compounds that are still authorised will be given greater attention.

PE 1. Development of methods for investigating mechanisms of action (including epigenetic).

PE 2. Study of modes of action with a view to identifying possible endocrine disruption related to the development of metabolic, hormonal or neurodevelopmental diseases, or reproductive disorders (such as infertility), including from the perspective of trans/intergenerational effects.

PE 3. Study of cocktail effects.

PE 4. Development of biomarkers of exposure and/or effects for substances classified as endocrine disruptors.

PE 5. Studies on exposure levels and risk assessment for workers (direct exposure) and for the general population (direct and indirect exposure, for example via food, cosmetics or

drinking water), in particular for vulnerable or sensitive populations (e.g. pregnant or breastfeeding women) with the determination of possible critical exposure windows.

PE 6. Construction of tools to link internal exposure (human contamination) / external exposure (environmental contamination) / health impacts (disease) related to endocrine disruptors.

Biological agents

ABIO 1. Links between ecosystem degradation, damage to biodiversity and increased frequency of outbreaks of infectious zoonotic and/or vector-borne diseases, or poisonings due to biotoxins, whether they concern emerging or re-emerging hazards:

1.1. Links between degradation of natural habitats (change in land use or forest incursion due to human activities, deforestation, mining, agriculture, etc.), increased contact between humans or farm animals and wildlife, and the phenomenon of crossing the species barrier;

1.2. Impacts of biodiversity loss on ecosystem functioning in terms of regulating infectious diseases;

1.3. Contributions from biomonitoring of ecosystems and wildlife in terms of prevention and mapping of risk hotspots.

ABIO 2. Exposure of the general population and/or workers to bioaerosols and to various biological agents (micro-organisms, toxins, mould, pollen, viruses and pathogenic bacteria).

ABIO 3. Behaviour and fate of pathogens in various environmental compartments, and potential effects on human health:

3.1. Study in aquatic environments and soil,

3.2. Study of antimicrobial resistance and the role of resistance factors, particularly environmental ones (from human activity to climate change), on the conditions for the emergence, perpetuation and transmission of antimicrobial resistance.

ABIO 4. Associations between biological agents and certain diseases (such as cancer, respiratory or skin sensitisation, psychological disorders, etc.). Long-term health effects related to mould exposure. Dose-response relationships in relation to exposure to biological agents (mould, pollen, etc.).

ABIO 5. Impacts on human health and ecosystems of co-exposures to microbiological and chemical agents.

Cross-cutting questions on risks to human health and the environment

Human and social sciences

QT 1. Research on citizens' contributions and social mobilisation (laypersons' knowledge, popular epidemiology, whistleblowers, scientific watch, vigilance schemes, impact mitigation measures, participatory research and expert appraisals):

- participation in expert appraisal processes and the production of environmental health knowledge, including surveillance schemes.
- participation in processes for preventing and managing health and environmental crises, including infectious disease outbreaks.
- new forms of mobilisation (production and use of data, mobilisation of open data, citizen measurement campaigns, emerging topics, etc.).

QT 2. Lobbying and interest groups in the production of knowledge and standards, and in risk governance. Intentional or structural production of ignorance.

QT 3. Study of regimes for producing and validating scientific knowledge in national and international organisations providing expertise on health and environmental risks.

QT 4. Critical analysis of the effectiveness, impact and challenges of information and communication schemes on health and environmental risks, especially incentive schemes (labels, scores, etc.) and risk prevention tools (health recommendations for reducing exposure, communication on cardiovascular and metabolic risk, consultations for environmental diseases, disease monitoring schemes and vigilance schemes for adverse effects, etc.).

QT 5. Inclusion of multifactorial approaches (gender, socio-economic situations, geographical, cultural and behavioural factors, etc.) to inequalities in exposure to health and environmental risks. Environmental justice.

QT 6. Analysis of multi-arena (especially digital) controversies on health and environmental risks, construction of public issues related to risks.

QT 7. Political and social aspects of regions subject to inherited and/or persistent environmental contamination (PFASs, dioxins, chlordecone, etc.), associated issues and controversies.

QT 8. Compensation for environmental and health risks: approaches and methods, case studies and related controversies. Analysis of approaches and methods, and related controversies.

QT 9. Socio-economic, political and organisational dynamics of product manufacturing and marketing, and public health/occupational health consequences.

QT 10. Challenges, debates and controversies related to the development of new technologies and the anticipation of their consequences.

QT 11. Concepts, approaches and controversies around socio-economic analyses applied to risk assessment.

Occupational health

QT 12. New forms of work organisation, digital technologies and health: issues and impacts of new ways of organising work (teleworking, algorithmic management, etc.) on prevention and protection in occupational health (including mental health).

QT 13. Impact of demographic change/ageing population and sedentary behaviour on occupational health.

QT 14. Assessment of the determinants (economic, social, organisational) of safeguarding personnel in occupational settings and the effectiveness of preventive measures, including suicide prevention.

QT 15. Study of the determinants of work organisation or managerial practices on physical or mental health.

Contamination of environmental media

Emerging risks and diseases

CoEm 1. Studies of risks associated with plastics (including reusable): composition and metrology of micro/nanoplastics in environmental compartments (soil, air, aquatic environments, biotope, etc.) and in food; characterisation of the dynamics of plastics and related chemicals between these various compartments; persistence of pathogens on the surface of plastics; biodegradability; exposure sources and routes; detection methods and measurements of accumulation in human tissue; effects and associated risks to humans and the environment.

CoEm 2. Study of emerging issues: chemical, physical and biological risks to humans and the environment, exposure characterisation.

CoEm 3. Study of the emergence of diseases associated with environmental exposure.

Air

AIR 1. Assessment of exposure and the health effects associated with chemicals, biological agents including aerobiological agents (e.g. pollen, mould, endotoxins) and particulate matter (according to its chemical composition, size and source) in air, and interaction with other environmental (e.g. climate change) and socio-economic factors:

- in different industry sectors, particularly outdoors (building and public works, agriculture),
- in French overseas *départements* and regions (e.g. *Sargassum* seaweed, sand haze, etc.),
- in specific indoor environments (shops, offices, hospitals, homes near petrochemical sites or service stations),
- associated with dust levels and ingested dust quantities and rates adapted to the French context.

AIR 2. Links between air pollution and health effects: research on new tools (e.g. air quality databases, sensor systems, modelling, biomonitoring, etc.) designed to improve the study of the dose-response relationship useful for risk assessment.

AIR 3. Assessment of the health effects of exposure to air pollution, particularly including "metrics"[9] of exposure other than the mass of PM_{10} and $PM_{2.5}$, for ultrafine particles (UFPs), black carbon, organic carbon and metallic elements, and the oxidising potential of particles and gases.

AIR 4. Relevant indicators for assessing chronic and/or cumulative exposure to air pollution (indoor/outdoor).

AIR 5. Assessment of the effects (additivity or interaction) of mixtures of substances in outdoor air including the mechanisms by which secondary atmospheric pollutants are formed from primary pollutants; study of the sensory irritation effect.

AIR 6. Exposure assessment: research and development of new analytical methods for detecting plant protection products and their main metabolites in air.

Waste

DECHETS 1. Exposure to waste and its effects on ecosystems and health in the general population, giving priority to exposure and the possible risks associated with bioaerosols generated by domestic composting.

DECHETS 2. Health and environmental risks during the waste lifecycle:

- associated with the presence of chemical or biological agents in recycled waste and biowaste.
- due to the presence of pathogens or bioaerosols during the domestic management of biowaste (food waste and green waste).

[9] "metric" meaning a way/methodology of characterising exposure with a view to determining its link with health effects; research into innovative approaches in this respect is encouraged.

Pathogen vectors and vector control

Taking cropping and animal husbandry practices, the role of wildlife and/or climate change into account

LAV 1. Vectors and animal or plant health, according to a "One Health" approach that can include human health: biology, ecology, vector distribution and surveillance, host-pathogen relationships, pathogen detection, resistance.

LAV 2. Vector control and animal or plant health, according to a "One Health" approach that can include human health: new active substances and biocidal products, development of innovative technologies (biological control, genetic control, etc.) including the optimisation of trapping and broad-spectrum methods. Effectiveness and impact of vector control, effectiveness of innovative techniques (Sterile Insect Technique, *Wolbachia*, etc.). Cost-effectiveness or benefit-risk indicators.

Climate change, biodiversity and health

CCLIM 1. Impacts of climate change on human health, including mental health impacts and damage to ecosystems:

1.1. Direct impacts due to extreme temperature variations (immediate and long-term health consequences, especially on vulnerable populations and workers).

1.2. Indirect impacts through the development of emerging diseases and the amplification of allergies, also taking into account the failures or inaccessibility of health infrastructures.

1.3. Indirect impacts through changes in the quality of environments and food, in access to physical activity and good quality sleep.

1.4. Development of measurement tools and indicators.

CCLIM 2. Transformation of how work is organised due to the ecological transition and climate change: impact on occupational health and risk prevention.

CCLIM 3. Quantification and modelling of the health and environmental benefits of measures to adapt to climate change (e.g. Nature-based solutions).

CCLIM 4. Impact of biodiversity and green and blue natural spaces on human physical and mental health and well-being, including in relation to climate change. Impact of reduced biodiversity or degradation of green and blue spaces on human health and well-being.

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ANNEXE 3: Chargeable expenses

I. BACKGROUND

The majority of successful applications are managed directly by ANSES (when funding comes from ANSES or ITMO Cancer AVIESAN, which has delegated management to ANSES). The financial rules that will be applied by ANSES are presented in this Annex. They help clarify the costs that can be covered in the submitted projects.

However, some applications will be managed directly by ADEME.

ADEME has its own specific funding rules. Its general rules for allocating aid, as well as the applicable system, are provided for information at:

http://www.ademe.fr/recherche-innovation/financer-theses-recherche-linnovation/systeme-daide-rdi

ADEME contact Hélène Desqueyroux helene.desqueyroux@ademe.fr

For reasons of simplicity, the rules applicable at ANSES are taken into account on the CRP submission site. If a project is managed by a co-funding partner, this partner may need to agree on changes with the project coordinator.

II. ELIGIBLE EXPENSES

Chargeable expenses should correspond to actual expenditure and be strictly linked to the project's execution, exclusive of any profit margin. In particular, only expenses incurred between the start and the end of the project, as stipulated in the agreement, will be taken into account. It should be possible at any time to prove the genuine nature of the expenses incurred. Receipts and all documents justifying the expenditure incurred under the project shall be kept by the recipients (coordinator or participating team) for two years and submitted to ANSES if requested.

Personnel expenses:

With the exception of public industrial and commercial entities, the personnel expenses taken into account in the amount of the financial contribution made by ANSES cannot, under any circumstances, concern the permanent staff of public entities.

For these entities, the only expenses accepted are wages of fixed-term contract staff and professional fees, including social contributions and taxes on wages.

Operating expenditure:

- assignments,
- promotion,
- internal invoicing,
- internship bonus,
- maintenance,
- non-recoverable VAT,
- consumables,
- other expenses (educational, etc.).

Equipment expenses:

- scientific equipment: expenses incurred for equipment whose unit value is greater than €1,600 excl. tax. ANSES will take into account:
  - all or part of the cost of purchasing this equipment, if it is not reusable after the project's completion (which should generally be the case);
  - the share of depreciation calculated pro rata to the period of use if the equipment is reusable after the project's completion, unless an exception is made by ANSES.
- licences and patents.

General management fees:

Part of the general administrative fees linked to the project can count as expenses. These fees are limited to 4% of total expenses, unless an exception is made by ANSES on the express request of the recipient (coordinator team or participating team), with justification.

Service provision:

Regardless of their legal status, recipients (leader or participating team) can contract work to or lease equipment from entities outside of the project. The cost of this work shall remain marginal in relation to the programme's total cost (less than 30% of this total cost), unless an exception is made by ANSES on the express request of the recipient, with justification. The costs of these services shall appear individually as overhead expenses.

ANSES does not enter into commitments with service providers, who therefore have no grounds upon which to make any claim to ANSES if the recipient (coordinator team or participating team) of a grant fails to comply with its obligations. Services are provided exclusively for and under the supervision of the grant's recipient (coordinator team or participating team). In accordance with the rules in force, the recipient (coordinator team or participating team) must pay for services as they are delivered, irrespective of the date of the payment expected from ANSES.

Internal invoicing case:

These expenses must be related to services traceable in accounting, carried out by another entity (department) of the grant recipient (coordinator team or participating team). The costs of these services must be identified analytically.
In addition, these services must be proportionate to their actual use for the purposes of the project and must not have been taken into account in the structural costs and/or management fees. They must be invoiced exclusive of any profit margin.

These expenses must comply with the eligibility rules described in this Annex.

III. NON-ELIGIBLE EXPENSES

The following expenses cannot be paid by ANSES:

- financial fixed assets and routine expenses to replace equipment;
- expenses related to marketing, sales and distribution fees;
- expenses related to land and buildings.