

National Research Programme for Environmental and Occupational Health: 2019 Call for Projects

Deadline for submitting letters of intent: 8 January 2019
Deadline for submitting the complete proposals: 2 April 2019

Please note that should any discrepancies be found between the English and the French version, the latter 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 of the Environment, Agriculture and Labour, and also involves several co-funding partners¹, including ADEME, and ITMO Cancer from the AVIESAN alliance as part of the Cancer Plan. It also benefits from funds under the ECOPHYTO II Plan. For this 2019 call for research projects, the Ministry of the Environment has allocated additional funds dedicated to projects on endocrine disruptors. Moreover, additional financing from the Ministry of the Environment will fund projects on the health effects of radiofrequencies.

The French National Research Programme for Environmental and Occupational Health (PNR-EST) promotes the production of knowledge in support of public policymaking for environmental and occupational health and safety, and disseminates this knowledge to stakeholders. This programme has a leading role in fostering interactions within the scientific community, which helps ANSES mobilise researchers for its collective expert assessments of health risks.

This programme organises calls for research projects. Two calls will be funded in 2019: this one, of a general nature, covering a wide area and including, for the second year running, a budget devoted to research on endocrine disruptors; and a second call dedicated to the theme "radiofrequencies and health".

II. OVERVIEW OF THE CALL FOR PROJECTS

This call for research projects (CRP) is issued each year to motivate scientific communities in the fields of environmental and occupational health to develop new methods and tools at all stages of the risk assessments for health or ecosystems, particularly in order to document research issues raised by the relevant ministries and government agencies. **Particular interest is given 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 quality of different ecosystems. These research projects should be able to contribute to a better understanding of issues that are now identified as critical and important: those of poly-exposure, the exposome, impacts related to climate change, and biodiversity.

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

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 health 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 projects supplements other calls published in 2018 or for 2019. These include:

- ANR calls for projects (see the 2019 ANR action plan)
- ECOPHYTO calls for projects
- ADEME calls for research projects:
 - IMPACT, impact of interactions between pollutants on humans and their environment; the 2018 winners were selected in early October 2018
 - GRAINE, manage, produce and make use of biomass, with a component on the environmental effects; the 2018 winners will be announced at the end of 2018
 - CO3, Co-construction of knowledge for ecological and supportive transition (participatory action research scheme), a new CRP that ended in September 2018 included a non-exclusive theme on environmental health
 - CORTEA, knowledge, reduction at source and treatment of air pollutant emissions, closed on 15 October 2018
 - MODEVA-URBA, modelling, urban cooling, and assessment for stakeholders of the cities and regions of tomorrow, issued on 1 October 2018 with a component on urban forms and health
 - TEES, ecological, economic and social transitions; issued in October 2018
 - AACT'AIRA, supporting action by regional authorities for the improvement of air quality, which will end in early February 2019
- PRIMEQUAL call for projects to be issued in June 2019 (estimated date)

III. SCOPE OF THE CALL FOR PROJECTS

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.

- It encourages researchers to include concepts, methods and tools from various disciplines within the same approach: biological and health sciences (genetics, cellular and molecular biology, physiology, immunology, epidemiology, neurosciences, etc.), physical and chemical sciences (biochemistry, materials science, industrial chemistry, agrochemistry, biophysics, microchemistry, physico-chemistry of the atmosphere, etc.), engineering sciences (especially those concerning various types of radiation, noise, metrology, etc.), environmental sciences (biodiversity, ecology, ecotoxicology), toxicology, microbiology, human and social sciences (ergonomics, sociology, economics, demographics, analysis of public policies, law, health geography, urbanism, etc.).
- Social phenomena related to health, whether in the professional environment (organisation of work) or general environment, are also a significant part of the Environmental and Occupational Health Programme. The call strongly encourages proposals that establish links between a biological and/or health and/or environmental

approach, and one based on socio-economics, geography, urbanism, or drawing on the political sciences².

- The scope of the CRP covers a wide range of risks from emerging risks through to known risks, including complex risks that are still scientifically controversial. The themes covered by the CRP in 2019 are listed in Annex 2. Each of them is accompanied by a **list of research questions**, that potential users of the research work can use during risk assessment or development of risk management measures.

IV. PROPOSAL CHARACTERISTICS

Proposals will 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 under the terms 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 manager being the scientist in charge of one of the teams. Funding is requested to complete the study or project. The rules are set out in Annex 3.

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 will be **2 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 be between **€40,000 and €200,000**. It can exceed these limits under exceptional circumstances if this is required by the project's nature, and provided the request is justified.
- 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 (RPSC). It is made up of renowned researchers. The RPSC will assess the scientific value of the submitted projects
- The second is the programme's steering committee. It is made up of sponsors³ and ministries involved in the scope covered by the call, as well as a representative of the ANR. The steering committee chooses the projects to be funded from the list established by the RPSC.

² <https://www.anses.fr/en/content/social-sciences-anses>

³ As defined in Annex 1

The selection process 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 procedures are described in Section IX.

Step 1: Selection based on the letters of intent

Letters of intent that do not meet the eligibility criteria defined in Section VI will not be evaluated. The RPSC will assess the letters of intent. This will take into account the scientific assessment criteria defined in Section VII. Members of the steering committee can also be consulted regarding criterion 3 and the closeness of the project to their priorities. Special attention should be paid to the quality of the letters of intent, which need to contain enough information, in a small amount of space, to allow the RPSC to evaluate the relevance of the proposal. Only proposals whose letters of intent are shortlisted will be eligible to submit a complete application.

Step 2: Selection based on 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 RPSC, 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 be submitted to the steering committee.
2. Collective opinion of the steering committee on the projects selected by the RPSC, according to the criteria described in Section VII. This collective opinion also takes into account the budgets and priorities of the sponsors concerned, which are highlighted in the research questions in Annex 2. The steering committee can also give advice on appropriateness of requested funds with regard to the planned tasks. Under exceptional circumstances, it may recommend project modifications or even consolidation to incorporate 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 steering committee. The list of selected projects and the sponsor's identity is published at the end of the selection process on the ANSES website.

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 that is available at each stage. Research projects must meet the same conditions at each stage:

Proposal characteristics

1. The projects must fall within the research domain covered by the call 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 projects. If there is any ambiguity, project managers 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 projects is open to all research teams, irrespective of the institution to which they belong⁴ (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 has clearly been established.
3. The project must involve one French academic partner (higher education and research establishments, research organisations, other public establishments with a research mission).
4. The call for research projects is open to foreign teams or to teams from international organisations.
5. An RPSC member cannot hold any management role 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 procedures 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 signed 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 that is available at each stage. The selection 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 novelty: proposals shall be justified with regard to research undertaken at French, European and international levels.

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) Connection to research questions. The considerations mentioned in the "Research questions" annex will play an important role in the prioritisation of projects, particularly by the steering committee.
- 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 novelty: proposals shall be justified with regard to research undertaken at French, European and international levels.
- 3) Connection to research questions. The considerations mentioned in the "Research questions" annex will play an important role in the prioritisation of projects, particularly by the steering committee.
- 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 project leader, distribution of activities among teams.
- 7) Appropriateness of the project length and allocated resources (financial request, human investments). Quality of the supervision of non-permanent staff.
- 8) For projects that could be the subjects of scientific controversy, measures adopted to ensure the quality of the results (e.g. traceability of data, presence 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 sponsor and the coordinator's establishment (or the establishments involved in the project, in the event of funding by ADEME). The main rules are listed in Annex 3.

For all funding parties, 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 sponsor, 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 report that includes a publishable scientific summary. The final report can be used by ANSES and the sponsor** in their missions.
- mention the support provided by the National Research Programme for Environmental and Occupational Health and the sponsor on appropriate occasions, in particular in publications, as stipulated in the agreement.

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

IX. PROJECT SUBMISSION TERMS

Letters of intent must be submitted online by the scientific project managers no later than **Tuesday 8 January 2019 at noon (12:00)**, French time. Projects shall be submitted using the **Research and Scientific Watch ("Recherche et Veille") platform** available via the websites of ANSES and the co-sponsors of the call for projects. The platform will be operational **in November 2018**.

Important: The project manager should carefully read the eligibility rules listed in this call for projects, including at the letters of intent stage.

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

The letters of intent will then be evaluated and the result ("authorised to submit a complete project or not") will be sent to the project manager.

For those whose letters of intent are shortlisted, complete applications must be submitted by the scientific project managers:

- 1) Online, no later than **2 April 2019 at noon (12:00)**, French time. Acknowledgement of receipt of electronic applications will be automatically sent to the project managers. All compulsory sections must be completed before the deadline. Incomplete applications will not be considered. Applicants are advised to prepare in advance.
- 2) By sending ANSES the certificate published by the platform after the application has been submitted. One printed copy⁵ of this certificate, with all the required signatures, must be sent by post no later than **23 May 2019 at midnight (00:00)**, to the following address:

ANSES-DRV
 APR EST 2019
 ACI-COP-2-028
 14 rue Pierre et Marie Curie
 F-94701 MAISONS-ALFORT Cedex
 France

Provisional key dates

November 2018	Opening of the call
November 2018	Opening of the online application for letters of intent
8 January 2019 at noon	Deadline for submitting letters of intent
Mid-February 2019	Dissemination of the first selection results, based on the letters of intent, to project managers

⁵ Coordinators are advised to gather all signatures on a single certificate. Nevertheless, one copy per signature will be accepted, in the event of difficulty. Scanned signatures are not accepted.

02 April 2019 at noon	Deadline for submitting the complete proposals
23 May 2019 at midnight	Deadline for returning certificates
September 2019	Transmission of the steering committee's results on final selection to the scientific project managers

X. CONFIDENTIALITY

Members of the Research Programme's Scientific Committee, 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.

Sponsors and state agencies serving on the programme steering committee are 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 projects.

For projects that could potentially be funded by **ECOPHYTO**, this plan's "Research and innovation" scientific committee will be consulted by the ministries responsible for the plan for a final funding decision (see Section V – Selection procedure).

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 the project as submitted to this call for projects, and the name of the partners. In addition, each funding organisation that has signed 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 signed with the project manager. Finally, the scientific reports issued on completion of the work will be submitted to the reviewers, who therefore have access to their content.

In accordance with the rules on intellectual property (literary and artistic property and industrial property), and the confidentiality rules inherent in research, all publications resulting from funded projects will be deposited on an open archive platform as required in the long term by national guidelines on open science. This will be specified as necessary in the agreement.

For all questions or requests for administrative or scientific information, please contact the CRP unit:

Scientific issues	Laetitia Dubois	recherche@anses.fr
Administrative issues	Delphine Lascar	recherche@anses.fr +33 (0)1 56 29 18 88
	Aurélie Pajon	recherche@anses.fr +33 (0)1 56 29 52 86

ANNEX 1: Sponsors

ANSES and its co-funding partners for the call for projects 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 Ministers 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;
- assessment of the nutritional and functional properties of foods,

Lastly, it conducts missions relating to veterinary medicinal products.

ANSES undertakes **independent and pluralistic scientific expert assessments**. Moreover, in its area of expertise, the Agency defines, implements and funds 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 topics 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 pollution of the living environment (air, water, soil) or with physical agents (radiofrequencies). 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.

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 expertise in risk assessment and scientific and technical support in the field of vectors, at the request of the Ministries of Health and Agriculture. A number of research projects on this topic may be funded by the PNR-EST as part of the support provided by the Directorate General for Food on the "vector control" theme.

II. MINISTRY OF ECOLOGICAL AND INCLUSIVE TRANSITION

The Ministry of Ecological and Inclusive Transition allocates part of its research budget to the research programme managed by ANSES. The PNR-EST is the descendant of the Environment & Health programme that was launched by the Ministry of the Environment and delegated to AFSSE when it was created in 2002. This budget gives the programmes a broad spectrum in the field of environmental health. In addition to ANSES's missions, Ministry of Ecological and Inclusive Transition also aims to address emerging issues in the field of

research, to anticipate and act in support of the ministry's public policies. ANSES's programme and activities for the coordination and application of the research it undertakes contribute to this objective.

The Ministry of Ecological and Inclusive Transition is a major contributor to the funding of this call for projects on many issues. 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. On the other hand, it does not deal with contamination through food and drinking water.

Furthermore, this Ministry manages other programmes that are subjected to regular calls for projects in the environmental health field on more targeted themes, to broaden work on these issues and help structure the scientific community in this field. In particular, the **PRIMEQUAL**⁶ programme on air quality, implemented by the Ministry of Ecological and Inclusive Transition (Research Division of the Sustainable Development Commission) and ADEME. It aims to provide decision-makers and environmental risk managers with the necessary scientific background and tools to monitor and improve indoor and outdoor air quality, in order to reduce health and environmental risks.

III. MINISTRY OF LABOUR

The Ministry of Labour has made research in occupational health one of its priority areas, through its 2016-2020 Occupational Health Plan. It aims to mobilise the scientific community on research questions related to occupational risk assessment for worker health.

As a co-funding partner of the environmental and occupational health research programme led by ANSES since 2005, the Ministry 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 better prevent health risks in the workplace.

The priority themes that can be financed in response to the research questions for the 2019 call are studies that aim to:

- identify/evaluate toxicological mechanisms that are still little known but have a high probability of occurrence in a professional context (example: multi-exposure);
- identify/evaluate occupational health risks that are known but still in sectors that are not well documented (for example: the non-auditory effects of noise for workers exposed via their workplaces, or a chemical agent that has not yet been studied in the context of occupational health 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.).

IV. ECOPHYTO PLAN

The Ministries of Agriculture, the Environment, Health and Research are jointly running the ECOPHYTO Plan, which aims to reduce the use of plant protection products and the associated risks and impacts, in line with qualitative, quantitative, economic and technical

⁶ French acronym for the Inter-organisational research programme for better local air quality

production requirements. It also mobilises the Ministries responsible for the Overseas Territories and Consumer Affairs.

The ECOPHYTO plan is funded in part by the French Agency for Biodiversity (AFB) with a share of the diffuse pollution fee levied by water agencies on the sale of plant protection products. The AFB's financial support for certain projects selected in this call will depend on the resources planned in 2019 for this plan's Axis 2 dedicated to research and innovation.

As part of the National Research and Innovation Strategy (SNRI) developed at the end of 2016, for the implementation of this Axis 2, priority research needs have been identified, aimed at producing knowledge on plant protection products, to help reduce their use and prevent their impacts (see the ECOPHYTO II National Research and Innovation Strategy http://www.ecophytopic.fr/sites/default/files/10-10_SNRI_VF.pdf).

The research should be able to address the particularities of the French overseas territories.

In the case of substances that have been withdrawn from the market, the choice of compound(s) must be justified (persistence in the environment, public health benefits, etc.).

V. ADEME

The French Environment and Energy Management Agency (ADEME) is a public establishment under the joint authority of the Ministries of Ecology and 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 (waste management, soil conservation, energy efficiency and renewable energies, air quality) and make progress with regard to sustainable development. ADEME's activities aim to offer prioritised responses to offset the impact of environmental nuisances. They promote novel practices and new economically and socially feasible 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 projects related to the social and environmental health impacts of human activities. In particular, it manages the research programmes CORTEA (Knowledge, reduction at source and treatment of air pollutant emissions), IMPACT (Impact of interactions between pollutants on humans and their environment), GRAINE (Manage, produce and make use of biomass), CO3 (Co-construction of knowledge for ecological and supportive transition), Modeval-Urba (Modelling, urban cooling and assessment for stakeholders of the cities and regions of tomorrow), TEES (Ecological, economic and social transitions), and AACT'AIR (Supporting action by regional authorities to improve air quality). Along with the Research Division of the Sustainable Development Commission, ADEME is also jointly leading PRIMEQUAL (the Inter-agency research programme for better air quality at local level).

VI. AVIESAN'S ITMO CANCER

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

The goal of ITMO Cancer is to bring together the research teams working on cancer pathologies, regardless of their affiliation. Its purpose is to propose concrete actions to improve the performance and competitiveness of French research, to ensure effective coordination between all the organisations and institutions involved in cancer research, to stimulate debate and facilitate interdisciplinary exchanges in the cancer community. It is 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".

ITMO Cancer works in partnership with the actors 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 actors, particularly research organisations, universities, university hospitals and funding agencies
- work 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 is therefore a facilitator of cross-cutting debate and actions.

As a sponsor of the PNR-EST call for projects, ITMO Cancer is likely to fund studies that deal with the identification, mechanisms of action, effects and ways to protect against the risk factors of cancer (chemical, physical, biological or behavioural) in the private or professional sphere.

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 themes, the questions underlined and in bold are regarded as priorities.

Physical agents
<p>Noise pollution</p> <ol style="list-style-type: none"> 1. Evaluation of extra-auditory effects for the general population and/or workers. 2. Assessment of auditory effects due to occupational exposure to low-frequency and high-intensity noise. 3. Evaluation of the health benefits of noise control measures.
<p>Non-ionising radiation</p> <ol style="list-style-type: none"> 1. Investigate the impact of new technologies for energy on general population exposure (e.g. wind turbines, smart grid, electric vehicles, etc.) 2. Characterisation of workers' exposure to solar UV radiation: identification of the industry sectors concerned, quantification of individual exposure and assessment of the health impact. 3. Characterisation of workers' exposure to artificial optical radiation (wavelength between 100 nanometres and 1 millimetre). 4. Characterisation of exposure to electromagnetic fields (from static to 8 kHz) and possible association with disease occurrence.
<p>Light pollution</p> <ol style="list-style-type: none"> 1. Characterisation of exposure and impacts of light pollution for the general population and the environment.

Mineral fibres and nanomaterials

Mineral fibres

1. **Measurement protocols, assessing exposure and health effects of elongate mineral particles of interest (EMPi as defined by ANSES)**
2. Short asbestos fibres: mechanisms of action, biopersistence, genotoxicity and studies of occupational exposure.
3. Characterisation of workers' exposure to asbestos fibres in the case of underground work sites (tunnelling) passing through veins of asbestos ores, or in cases of potentially asbestos-bearing mines and quarries.
4. Comparison of emissivity between chrysotile-containing materials and amphibole-containing materials, particularly of the amosite type.

Nanomaterials and nanoparticles

1. **Distribution and fate, in environmental compartments, of nanomaterials to which the general population and living organisms are exposed.**
2. Emission potential of nanoproducts under normal or predictable conditions of use.
3. Assessment of exposure (including via the oral route) to manufactured nanomaterials (measurement, modelling), taking the whole product lifecycle into account.
4. Ecotoxicology and toxicology of nanoparticles and nanomaterials. Methodological research, reference methods, reference materials. Comparison of studies.

Cancer

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

1. Study of cancer risks related to environmental and/or occupational exposure to potentially carcinogenic substances (including a "lifelong" approach).
2. Identification of environmental or occupational risk factors for cancer.
3. Gene/environment/behavioural interactions.
4. Development of cost/benefit quantification methods applied to the prevention and/or management of cancer.
5. Identification and/or validation of biomarkers to assess risks in environmental or occupational exposure situations.

Exposure to plant protection products⁷

1. Estimation of exposure.

For professional users, for residents close to treated areas, for vulnerable populations; including the development of measurement methods and tools.

2. Health effects.

- Under real conditions of use of substances: strengthen knowledge of the links with certain insufficiently investigated diseases, particularly neurodevelopmental diseases such as autism, hormonal disorders linked to the endocrine-disrupting effect, effects on reproduction in general, metabolic diseases, respiratory disorders and certain cancers.
- Deepen knowledge, through a compartmental approach (soil, water, air, consumption, etc.), on the persistence of substances and their degradation products, and on risks to health and ecosystems.

3. Develop and assess preventive measures aiming to reduce health effects.

Evaluative research on preventive measures, perception of risks associated with pesticides and user behaviour (professionals and amateurs), production techniques that would reduce the presence of residues in agricultural foodstuffs or the uses of plant protection products.

Chemical agents

1. Exposure to contaminants and effects on ecosystems and human health: aquatic environments, compartmental approach (soil, air, water, etc.) and effects of mixtures.
2. Impacts of exposure to chemical risks in the workplace, particularly multi-exposure or cumulative exposure to chemicals and other types of nuisance (physical, biological, stress, etc.).
3. Quantification of exposure levels in the general population and for vulnerable or sensitive populations. Development of methods for measuring contamination in biological media of populations exposed to chemicals and in particular to CMRs.
4. Studies on substituents (exposure and impact).
5. Effects on humans and the environment of low doses of CMR agents (categories 1A and 1B of the CLP Regulation) and/or cumulative exposure.
6. *In vitro* and *in vivo* animal models and development of global "cocktail effect" indicators for assessing the toxicity of micropollutant mixtures for chronic exposure assessment.
7. Assessment of the effectiveness of management measures for contaminants posing a risk to human health: control of transfer to environments (especially aquatic), reduction of exposure and risks.

⁷ Definition according to Regulation (EU) No 1107/2009

Endocrine disruptors

Research questions on endocrine disruptors will focus on the health or environmental impacts, in the general or occupational population, of all substances for which such an effect is suspected or proven: phthalates, flame retardants, cosmetics, drug residues, plant protection products.

Research on compounds that are still authorised will be given greater attention.

NB: Research on endocrine-disrupting plant protection products is eligible under the two corresponding sections.

1. **Development and testing of methods for investigating mechanisms of action, with a view to characterising endocrine-disrupting modes of action.**
2. **Study of the modes of action with a view to identifying possible endocrine disruption related to the development of certain diseases, including from the perspective of trans/intergenerational effects.**
3. **Study of effects at low doses and/or cocktail effects.**
4. **Development of biomarkers of exposure and/or effects for known or suspected endocrine-disrupting substances.**
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), in particular for vulnerable or sensitive populations (children, pregnant women, people with diseases, etc.).**
6. **Construction of tools to link biomonitoring and exposure assessment; determination of possible critical exposure windows.**

Biological agents

1. Exposure of the general population and/or workers to bioaerosols and to various biological agents (micro-organisms, toxins, viruses, pathogenic bacteria). Behaviour of pathogens in various compartments of the environment, particularly aquatic environments, and potential effects on human health.
2. Associations between biological agents and disease (cancer and respiratory or skin sensitisation).

Human and social science approaches to health⁸ and environmental risks

Particular attention will be paid by the Scientific Committee to the presence and quality of projects with an HSS team (coordinator or partner)

1. Citizen contributions (knowledge of laypersons, whistleblowers, scientific watch, vigilance schemes, use of open data, participatory research):
 - to expert appraisal processes and to the production of environmental health knowledge
 - to processes for managing health and environmental crises
2. Lobbying and interest groups in the production of standards and in risk governance.
3. Strengths and limitations of risk information and communication activities and mechanisms.
4. Factors of unequal exposure to environmental and health risks.
5. Social networks, public mobilisation and risk representation.
6. Regimes for producing and validating scientific knowledge and controversies in the governance of health and environmental risks.
7. Impacts of economic and organisational factors (intra- and inter-company, such as the "safe by design" approach) on the consideration of health dimensions in product manufacture (exposure of workers) and marketing (exposure of consumers).
8. The place of health and environmental issues in innovation strategies and in corporate social responsibility policies. Approaches and methodologies for socio-economic analysis of health and environmental impacts, particularly in the field of the circular economy and recycling.
9. Law and risks (including focus on the protection of whistleblowers).

⁸ HSS issues can also be addressed through other sections.

Media and contamination

Emerging contaminants

1. **Case of microplastics. Dissemination in the food chain and water cycle, and risks to humans and the environment.**
2. Emerging issues: chemical, physical and biological risks to humans and the environment, exposure characterisation.

Air

1. **Assessment of exposure and of the risks associated with hazardous chemical pollutants, pathogens and particles in air:**
 - **in poorly studied places (shops, offices, means of transport),**
 - **near major highways, ports, airports.**
2. For emerging pollutants (as defined by ANSES): fate and health impacts of particles emitted by transport and their inclusion in air pollution models.
3. Studies or development of tools to identify the effect of airborne contaminants – particularly allergenic – in the workplace.
4. Relevant indicators for assessing chronic and/or cumulative exposure to air pollution (indoor/outdoor).
5. Identify the share of exposure routes (dermal, digestive, respiratory) for indoor pollutants.

Waste

1. Exposure to waste and its effects on ecosystems and human health in the general population and at work, regardless of the study environment (marine waste, soil, fresh water, etc.).
2. Health and environmental risks during the waste lifecycle:
 - related to the practice of local composting,
 - associated with the presence of contaminants in recycled waste.

Vectors, climate change and health: Management measures

Vectors and vector control

1. Vectors and human, animal or plant health: biology, ecology, vector distribution, host-pathogen relationships, vector surveillance, detection (pathogen-pathogenicity relationships; sentinel vectors, etc.), differential exposure, resistance.
2. Vector control: new active substances and biocidal products, development of innovative technologies (biological control, genetic control, etc.) without excluding the optimisation of trapping and broad-spectrum methods; effectiveness of vector control (cost-effectiveness or benefit-risk indicators; consideration of factors relating to cultivation practices).

Climate and management measures

1. **Health impacts of climate change:**
 - **Direct impacts (immediate and long-term health consequences of heat and exceptional climatic events, especially on vulnerable populations and workers).**
 - **Indirect impacts through quality of environments and food, and the development of emerging diseases.**
 - **Economic consequences.**
 - **Development of measurement tools and development of indicators.**
2. Epidemiological studies on "health and adaptation" in the French overseas territories.
3. Quantifying the health and environmental benefits of management measures.

ANNEX 3: Chargeable expenses

I. BACKGROUND

Most selected applications are managed directly by ANSES (when funding comes from ANSES or ITMO Cancer, which has delegated management to ANSES). The financial rules that will be applied by ANSES are presented in this Annex. They help define the expenses that may be covered in the submitted projects.

However, some applications will be directly managed by other co-sponsors (ADEME, French Agency for Biodiversity). ADEME has its own specific funding rules. ADEME's general rules for allocating and paying financial aid, as well as its system of aid for research, development and innovation (RDI) are available for information at:

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

ADEME contact H  l  ne Desqueyroux helene.desqueyroux@ademe.fr

To simplify the process, **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 negotiate modifications with the project managers.

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 beneficiaries for four years and submitted to ANSES if requested.

Personnel expenses

The only expenses accepted are: wages of fixed-term contract personnel and professional fees, including social contributions and taxes on wages.

With the exception of permanent personnel whose salaries come from the French state budget, the other personnel expenses are taken into account in the amount of the financial contribution made by ANSES.

Overhead expenses and small-equipment expenses

The following expenses are accepted, including non-recoverable VAT:

- laboratory costs (procurement of products or consumables),
- office supplies,
- purchase of patents or licences,
- publication costs,
- travel expenses of permanent or temporary personnel assigned to the project, particularly for participation in ANSES communication and dissemination events,
- conference registration fees related to the project,
- outsourced work (photos, computing, etc.),
- maintenance of equipment purchased for the project,
- procurement of small equipment whose unit cost is less than €1,600 excl. tax,
- allowances for trainees.

Equipment expenses

Equipment expenses are regarded as 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.

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, with justification.

Service provision

Regardless of their legal status, recipients 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 of a grant fails to comply with its obligations. Services are provided exclusively for and under the supervision of the grant's recipient. In accordance with the rules in force, the recipient 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 or partner of the project). 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.