

# **SUSTAINABLE PRODUCTION AND ENVIRONMENTAL TECHNOLOGIES**

## **ECOTECH**

### **2010 Edition**

Deadline

***13:00PM on February 25th, 2009***

Web page dedicated to the call for proposals

<http://www.agence-nationale-recherche.fr/AAP-280-ECOTECH.html>

This call for proposals is implemented by ADEME, which has been commissioned by the ANR to carry out the operations of evaluating and managing grant applications.

### **KEY WORDS**

Eco-industry, environmental technologies, life-cycle of products, eco-conception, clean production processes, substitution of dangerous substances, waste recycling, environmental monitoring technologies, water, air ,soil, coastal environment, industrial, urban and agricultural pollutions, technology transfer from nanotechnologies, biotechnologies and ICT

## **IMPORTANT DATES**

### **CALL DEADLINE**

Research proposals must be submitted on the electronic submission web site  
before the following deadline :

**APRIL 8TH, 2009 AT 14H00 (PARIS LOCAL TIME - GMT+1)**

(see § 5 « Guidelines for proposal submission»)

### **PAPER SUBMISSION FORM**

A printed version of submission (*document de soumission*) form signed by all partners  
must be sent by recommended letter (return receipt requested) and postmarked no later  
than:

midnight on March 5th, 2010

to the following postal address:

Secrétariat du programme ECOTECH - ADEME

Service programmation de la Recherche

20 Avenue du Grésillé – BP 90406

49004 Angers cedex 01, France

## **CONTACTS**

### **CORRESPONDENT(S) IN THE SUPPORT UNIT**

#### **Technical and administrative questions**

Dr. Nicolas PETIT, tel : +33.2.41.20.42.48

Email : [ecotechnologies@ademe.fr](mailto:ecotechnologies@ademe.fr)

Fax : +33.2 41 20 41 97

#### **ANR PROGRAMME OFFICER**

Dr. Philippe Freyssinet, email : [philippe.freyssinet@agencerecherche.fr](mailto:philippe.freyssinet@agencerecherche.fr)

**It is important to read carefully the present document in its entirety as well as the  
regulations pertaining to the modes of funding allocation followed by the ANR before  
submitting a research proposal.**

## **CONTENTS**

<b>1. CONTEXT AND OBJECTIVES FOR THE CALL FOR PROPOSALS.....</b>	<b>5</b>
1.1. Context.....	5
1.2. Programme objectives.....	5
1.3. Objectives of the Call for Proposals .....	6
<b>2. THEMES.....</b>	<b>7</b>
2.1. Theme 1: Paradigm change .....	7
2.2. Theme 2: Towards sustainable industrial production.....	8
2.2.1. Sub-Theme 2.1: Reducing CO2 Emissions in Industry	9
2.2.2. Sub-Theme 2.2 : resource savings	9
2.2.3. Sub-theme 2.3 : substitute technologies	9
2.3. Theme 3: Transformation and the use of secondary raw materials ? .....	9
2.4. Theme 4: React to pollution by treatment and cleanup of polluted environments.....	10
2.5. THEME 5: Better eco-surveillance through increased and improved environmental quality measurement .....	11
<b>3. EVALUATION OF RESEARCH PROPOSALS.....</b>	<b>12</b>
3.1. Acceptability criteria .....	13
1.1. Eligibility criteria .....	14
1.2. Evaluation criteria .....	14
3.2. Main Recommendations.....	15
Recommendations about the proposal context (criteria 1 et 2)	15
Recommendations about the project outcomes (criteria 4)	16
Recommendations about the consortium (criteria 5)	16
Conditions for funding temporary personnel	16
Recommendations concerning ANR funding requests	16
Recommendations about the application for labeling from a competitiveness cluster	16
<b>4. GENERAL FUNDING MECHANISMS.....</b>	<b>17</b>
4.1. ANR funding .....	17
Type of funding	17
Percentage of private sector funding	17
Conditions for funding temporary personnel	18
PhD scholarships	18
4.2. Consortium agreement.....	18
4.3. Competitiveness Clusters.....	19
4.4. Other funding stipulations.....	20
<b>5. RULES FOR APPLYING .....</b>	<b>20</b>
5.1. Contents of the application file .....	20
5.2. Transmittal of the application file .....	21
<b>ANNEX.....</b>	<b>22</b>
<b>1. GLOSSARY.....</b>	<b>22</b>

1.1.	– Types of research .....	22
1.2.	Project organisation .....	22
1.3.	Definitions for Organisations .....	23
1.4.	Other definitions .....	23
2.	<b>SUBMISSION AND EVALUATION CRITERIA FOR FRANCO-CHINESE PROJECTS .....</b>	<b>25</b>
2.1.	Fields Open to Franco-Chinese Projects .....	25
2.2.	Submission Criteria .....	25
2.3.	Specific requirements for franco-chinese proposals.....	26
2.4.	Evaluation criteria .....	26

## 1. CONTEXT AND OBJECTIVES FOR THE CALL FOR PROPOSALS

### 1.1. CONTEXT

The concept of ecotechnologies encompasses several approaches including reducing pollutant emission at the source, the conservation of natural resources and reducing environmental risks. The ecotechnology field covers new strategies aimed at environmental efficiency in both production and consumption patterns as well as environmental technologies focusing on reducing pollution in natural environments (water, soil, ocean and air).

France ranks 4<sup>th</sup> worldwide (and 2<sup>nd</sup> in Europe) by size of the eco-industry sector, and it owes this strong position especially to the activity of both large multinationals and a dense network of SMEs. The strengthening of environmental regulation both in Europe and the world is having a significant impact on economic activity, and henceforth those countries and those industries capable of generating eco-innovations will clearly reap benefits in the form of increased competitiveness<sup>1</sup>.

In response to the recent French national environmental assizes (“Grenelle”), the action plan Ecotech 2012 was implemented jointly in 2008 by the ministry of industry (MINEFE) and ecology (MEEDDM). This plan is intended to stimulate eco-industries. The ANR's ECOTECH program is aligned with this objective and aims at reinforcing French R&D capacity in the area of eco-innovation.

The ECOTECH program has been launched by the ANR in close coordination with the “ECO-INDUSTRIE” Call for Proposals<sup>2</sup> co-funded by the DGCIS, the ADEME and OSEO, as communicated by the Ministry for Industry and the Ministry of Ecology on December 3, 2009 to the Strategic Commission for Eco-Industries. The ECO-INDUSTRIE Call is intended to fund pilot projects and demonstration phases whose time-line to market is relatively short (2-5 years). The ANR ECOTECH program targets more academic research, of the sort that potentially can lead to technological breakthroughs .

ECOTECH's 2010 Call for Proposals is open to international consortiums (cf § 4.1). It is important to note that an agreement has been signed with the Ministry of Science and Technology (MOST) of the People's Republic of China for funding Franco-Chinese ecotechnology research projects in the area of water (resource management, water treatment technologies, standards and measures, etc.). Details are provided in Annex II.

### 1.2. PROGRAMME OBJECTIVES

The overall goal of this program is to foster the emergence and spread of innovative technologies and services by a research effort focused on the various types of barriers whether technological, organizational, regulatory, economic, or social. The hoped-for impact should take the following forms:

---

<sup>1</sup> [http://www.minefe.gouv.fr/presse/dossiers\\_de\\_presse/081202ecotech2012/som\\_081202ecotech2012.php](http://www.minefe.gouv.fr/presse/dossiers_de_presse/081202ecotech2012/som_081202ecotech2012.php)

<sup>2</sup> [http://www.industrie.gouv.fr/portail/une/index\\_appe\\_cours.html](http://www.industrie.gouv.fr/portail/une/index_appe_cours.html)

- a significant reduction in industrial greenhouse gas emission through the introduction of substitute technologies or through higher performance of treatment technologies;
- a reduction in the volume of industrial and urban waste as well as in the emission of toxic waste that ends up in ecosystems;
- an increase in the rate of raw material recycling and a reduction in the consumption of non-renewable resources;
- an improvement in monitoring of environmental quality by high-performance and cost-effective environmental measurement systems.

Program objectives specifically include:

- strengthening French research and innovation capacity in ecotechnologies in the face of international competition;
- developing sustainable processes, products and services for industry by encouraging socio-economic approaches to sustainable organization of industrial systems;
- encouraging the emergence of breakthrough technologies in industrial processes or technology transfer from the fields of information technologies, nanotechnologies, and biotechnologies.;
- ensuring a greater visibility for French activity in this area and strengthening partnerships between enterprises and laboratories.

### **1.3. OBJECTIVES OF THE CALL FOR PROPOSALS**

The 2009 edition of the Call for Proposals has been issued along the following five thematic lines:

- Theme 1: Paradigm change
- Theme 2: Towards sustainable industrial production
- Theme 3: Transformation: developing secondary raw materials
- Theme 4: Reactivity: improved clean-up of polluted environments
- Theme 5: Monitor: more extensive and more accurate assessment of environmental quality

This Call is open to:

- Public-private research projects involving public research organizations and private enterprises for either finalized or fundamental research around highly innovative concepts that are still a long time from market.
- Fundamental research projects susceptible of leading to either technological or organizational breakthroughs whether partnered with a private firm or not.

The overall funding balance sought by the ANR is for 7 out of 10 proposals selected to be public-private research projects.

Projects centered around experimental development (prototypes, pilot projects, demonstrators, and the like) are excluded from this call and should be presented within the ECO-INDUSTRIE Call for Proposals, as launched by the DGCIS, ADEME, OSEO.

**All environmental medias are under consideration by the ECOTECH program (water, air, soil, marine environments, etc.)**

The ECOTECH Call for Proposals interfaces thematically with other ANR Calls. To avoid confusion it should be noted that:

- The Industrial Systems Efficient Energy and CO<sub>2</sub> Emission Reduction program (EESI) is focused more specifically on issues of energy efficiency at the level of whole industries or sectors, as well as on CO<sub>2</sub> emission capture. Nonetheless projects aimed at technologies for waste treatment/recycling or for CO<sub>2</sub> re-use are covered by the ECOTECH program.
- The Bioenergies program takes into account all aspects of pre-treatment and energy re-use of organic waste.
- The Sustainable Cities program covers systemic research at the city-level particularly on material flows (municipal waste, etc.) as well as methodological research on re-categorization of industrial wasteland, land use and subsoil resources. The engineering technologies and tools associated with these topics are nevertheless covered by ECOTECH.
- Academic research in the area of chemical processes or synthetic materials that are likely at some point to have environmental applications are specifically covered by a new program: Sustainable Chemistry – Industries – Innovation (CD2I).
- The study of how dispersion of pollutants occurs and the impact of pollutants on various medias, as well as the development of bio-markers and bio-indicators, are topics for the program Contaminants-Ecosystems-Health (CES). Technologies for monitoring and characterizing contaminants in ecosystems and specific analyses are however covered by ECOTECH.

## **2. THEMES**

### **2.1. THEME 1: PARADIGM CHANGE**

Eco-innovations are largely the result of developments in the area of industrial organization. This Theme is intended to encourage the implementation of sustainable production/consumption systems, which requires the development of methodologies and tools for analysis and decision-making of use to engineering firms.

The stakes involved in environmental issues would suggest a consideration of solutions arising from a systemic approach to the organization of production, and production systems. Economic models aiming at lower environmental impact such as industrial and territorial ecology or functional economics are emerging subjects requiring a more thoroughgoing analysis.

Research in these areas requires a particularly strong dose of interdisciplinarity (social and human sciences, environmental sciences, computer science, science for engineering, and life sciences). Research projects need to cover the development of tools and methodologies that will in turn contribute to the development of new services. This Program ought also to help engineering and consulting firms to develop operational decision-making tools.

Proposals submitted under this program should be explicit concerning their response to various questions:

- What are socio-economic models for sustainable production/consumption? How should they be characterized? Using what methods?
- What is the impact of shifts in the regulatory framework in environmental and health fields on the organization of industrial systems? What are the technical parameters for building new criteria to respond to health and environmental consequences. At what scale (firm, industry, etc)? Using what approaches in order to foster the recognition of good practice (labelling, etc.)?
- It would appear that many breakthroughs are the result of significant changes in the values of organizations, whether internal changes or ones that ripple through an entire system (examples could include functional economics or dematerialization). What are ways to foster cooperative interaction among the various actors in an industry (firms, sub-contractors, local and regional government, supra-national organizations, users, consumers, etc.) to arrive at common goals involving environmental impact reduction?
- How can public procurements move toward eco-efficiency?
- What tools and methods will enable the conception and implementation of public policies that integrate urban or rural development with eco-innovation (in water or waste management, for example)?

Some successful proposals will analyze systems in France and abroad. International consortiums are encouraged to submit proposals in this area.

## **2.2. THEME 2: TOWARDS SUSTAINABLE INDUSTRIAL PRODUCTION**

The ECOTECH program is intended to strengthen research on environmental improvements in industrial sectors and especially those whose impact is to reduce greenhouse gas emission, raw materials consumption, waste volumes and the amount of effluents, or to promote substitution for polluting inputs. The twin objective of this approach is to reduce industrial impact on both ecosystems and human health. This Theme is open to the whole range of industrial production (with the exception of the chemical industry which is treated under a specific program (CD2I). The goal of the call is to instigate breakthrough innovations at the industry-level, or technological bricks.

This Theme is articulated along three priority sub-themes:

### 2.2.1. SUB-THEME 2.1: REDUCING CO2 EMISSIONS IN INDUSTRY

The steady growth of greenhouse gas emission markets should be seized as the occasion for a thorough re-examination of a number of conventional industrial processes leading to new substitute technologies. This involves identifying investigations that will enable significant reductions in the emission of CO<sub>2</sub> and other greenhouse gases (GES) in those industries that are heavy emitters of GES. This will likely take the form of systemic approaches toward an entire industry (for example, cement, glass, steel, materials, etc.) aimed at reducing GES emission at the source by modifying processes. Proposals concerning capture of industrially emitted CO<sub>2</sub> are, however, covered by the ANR's EESI program.

### 2.2.2. SUB-THEME 2.2 : RESOURCE SAVINGS

Developing more resource-conservative or intensive industrial processes is an important line of investigation for technological innovation. The goal is the conception of industrial production systems which enable significant savings in resource consumption (chiefly raw materials and water).

### 2.2.3. SUB-THEME 2.3 : SUBSTITUTE TECHNOLOGIES

The interest in substitute technologies grows as the regulatory framework (REACH, RoHS, etc.) strengthens. Long-term pressures on raw material supply coupled with increasing requirements to reduce emissions calls for deep changes in certain industries. The introduction of bio-products, or the replacement of certain solvents or other polluting substances, often constitutes a significant technological leap.

This Theme is focused primarily on alternative technologies or new options for industrial processes, including waste treatment/recycling to achieve significant reductions in emission of pollutants and/or the volume of waste and effluents. Such approaches are concerned in particular with topics such as liquid and solid wastes or atmospheric emissions from fixed sources.

Successful proposals will specify how the substitute technology will reduce uncertainty concerning environmental impact or uncertainties pertaining to natural resource consumption or negative effects on human health. Projects must integrate an eco-conception (or LCA) approach in looking at the industry in question, thereby identifying the chief weaknesses of current processes in terms of environmental and health impact. Such analysis will also identify the improvements expected of new processes, without ignoring possible pollution transfers.

## **2.3. THEME 3: TRANSFORMATION AND THE USE OF SECONDARY RAW MATERIALS ?**

Waste management and valorization is one the major themes to emerge from the French national assizes on the environment ("Grenelle") in 2008, and France plays a leading role internationally in this area. Despite two decades of progress, the valorization of waste products remains an area where much more needs to be done in order to achieve targets set by France and the European Union. It is becoming a matter of strategic and economic importance to increase significantly the rate of waste recycling as an alternative to conventional treatment and storage.

This Theme is focused on industries characterized by large volumes of waste to be treated (sediments, construction wastes, high-volume industrial wastes, muds, etc.) and by high potential value-added (recuperating metals or rare substances, recycling plastic, etc.) Eligible approaches under this Theme include treatment of industrial and urban waste matter and also waste from agriculture and forest management.

This AAP is intended to stimulate three types of projects:

- Systemic approaches that take into account the whole of an industry from ecoconception, production and recycling to waste re-use, in the goal of improving recycling rates. Economic analyses ought to go beyond cost-benefit to take into account the functioning of markets for raw materials, both primary and secondary, both in terms of the intended re-use as well as competing uses.
- Projects focused on the development of highly-innovative technological bricks that enable significant gains in technical or economic performance. The main barriers already identified are inefficiency in grinding, sorting and separating, and in short the need for deconstruction technologies.
- Projects that bear on technological breakthroughs are anticipated in the area of marking and traceability of materials or waste matter, in conjunction for example with ICT research. An example would be the direct application of innovations in ambient intelligence to achieve better controls for waste sorting through the use of specific sensors or networks of sensors.

#### **2.4. THEME 4: REACT TO POLLUTION BY TREATMENT AND CLEANUP OF POLLUTED ENVIRONMENTS**

Great advances have been achieved in technologies for treating water, gases, soil and marine environments in recent years, as measured in terms of performance, energy efficiency and cost optimization. Such technologies currently represent more than 60% of the European eco-industry market. This Theme covers all polluting emissions having an impact on either ecosystems or human health, with special attention paid to emissions identified in the National Public Health and Environment Plan 2009-2013 (PNSE2), including environmental disturbance, such as noise.

The call for proposals under this Theme is focused for the most part on breakthrough research (partnered or not) and encourages technology transfers especially in the areas of biotechnologies and nanotechnologies, in hopes of stimulating leaps in either technical or economic performance in the area of pollution treatment. A particular focus is on research at the interface between remedial processes on one hand and nanoscience, nanotechnologies and biotechnologies for treatment of complex medias and persistent pollution (examples: POPs, chlordecones, etc.) on the other hand.

The search for innovations may also focus on breakthroughs in the area of treatment strategies (preventive and curative technological developments), including for large medium-polluted systems. Innovative approaches could include:

- a combination of treatment and uses (possible tie-in with Theme 3), especially in the area of water and soil;
- a combination of treatment with some other function whereby an element retains its original purpose (for example, a construction material) while acquiring a treatment property (cleaning air for example);
- the integration of treatment functions with production functions (treatment at the source) in order to avoid a mix of emissions, which is often more difficult to treat, and to facilitate recycling;
- ecological engineering, a field with strong growth potential, leading to breakthroughs in the area of remedial strategies for polluted urban and industrial environments.

Projects may also bear on the topic of existing emissions for which a measure of improvement is sought as well as on potentially polluting emissions for which there is not yet a strict regulatory framework and which result from current technological developments (emerging substances, nanoparticles, new materials, substitution products, etc.). A part of such projects should focus on risks associated with these new technologies.

## **2.5. THEME 5: BETTER ECO-SURVEILLANCE THROUGH INCREASED AND IMPROVED ENVIRONMENTAL QUALITY MEASUREMENT**

Environmental oversight has become an ecotechnological field of its own, and increasingly it is the first step in environmental management policies for chronic risks (cf. EC Framework Directives on Water, Soil, Air, etc.) and for accidental environmental risks. The health-and-environment sector is expanding rapidly, for example in oversight of living spaces, interior air quality, etc.). A regulatory framework for soil and ecosystem quality is emerging and will eventually expand the market for environmental measurement.

This development calls for an implementation of strategies for deploying low-cost instrumentation (in soils, oceans, space or urban networks), as well as for tools for validating, managing and interpreting the data masses these strategies will generate.

The ECOTECH program is intended to support projects whose aim is to develop highly innovative integrated instrument systems, where integration involves the entire chain including sensors, and data acquisition, validation, storage, treatment and interpretation. In particular, successful proposals will focus on reducing significantly the cost of measurement and analysis, on innovations stemming from ICT research, and on linkages between spatial or airborne observation systems and ground-level measurement.

As concerns instrumentation, biotechnological and nanotechnological linkages will likely yield technological leaps.

Current technological or economic barriers include:

- the measurement of emerging substances whose characteristics are not yet clearly integrated into regulatory frameworks due most notably to the absence of technologies to do so (examples: nanomaterials, nanoparticles, or emerging

pollutants cited in the Water Framework Directive<sup>3</sup>;

- the development of measurement networks and associated real-time, low-cost data treatment systems, especially for diffuse pollution;
- multi-source data treatment tools to bring about significant improvement in warning mechanisms (example: predictive models in conjunction with measurement systems), or automated decision aids for minimizing environmental impact;
- technologies for characterizing various types of environmental exposure (including the type and sources of exposures) and types of exposed populations, in conjunction especially with actions recommended within the framework of the PNSE2 for cases of known public health impact;
- tools and devices for obtaining representative samples of processes that vary rapidly in time and in space and, in addition, technologies for detection and quantifying difficult-to-access pollution (aquifers, soil pollution, sunken ships, etc.);
- automatic tools and devices for detecting accidental pollution spills.

Proposals should include a precise check-list of technological objectives, including performance criteria, treatment of uncertainty, and the intended market.

### **3. EVALUATION OF RESEARCH PROPOSALS**

The main steps in the selection process are as follows:

- The acceptability of submitted proposals is checked by both the ANR and by the support unit according to criteria specified in § 3.1.
- Eligibility of submitted proposals is checked by the evaluation committee, according to the criteria specified in § 3.2.
- Peer reviewers are appointed by the evaluation committee.
- Peer reviewers issue their assessments based on the evaluation criteria specified in § 3.3 (evaluation grid for peer reviewers is available on the web page dedicated to the call for proposals – as indicated on p1).
- The evaluation committee reviews research proposals upon reception of the peer reviewers' assessments, and draft a scientific evaluation report (consult the evaluation grid available on the web page dedicated to the call).
- The steering committee examines the submitted proposals and issues a list of proposals to be proposed for funding by the ANR (consult the steering committee grid on the web page dedicated to the call).
- A list of proposals selected by the ANR (comprising a main list and a complementary list) is published on the ANR website, on the page dedicated to the call.
- A consolidated evaluation report is sent to the coordinators of non-selected research proposals.
- The proposals selected are subjected to a negotiation phase for scientific, financial and administrative issues.

---

<sup>3</sup> WFD– <http://europa.eu/scadplus/leg/fr/lvb/l28002b.htm>

- A final list of projects selected for funding by the ANR is published on the ANR website calls page.

The role of each of the principal actors in the selection process is as follows:

- Peer reviewers, appointed by the review committee, issue a written assessment for all proposed projects. Each project is reviewed by at least two experts.
- The review committee is composed of eminent national and international scientists whose fields of expertise correspond to the requirements of the call. Its assignment is to review the proposed projects based on the assessments of the external experts and to assign each proposal to one of three categories: A (recommended); B (acceptable); or C (rejected).
- The steering committee is composed of eminent personalities and/or institutional representatives. Based on the findings of the evaluation committee, the steering committee delivers a list of projects proposed for funding by the ANR.

All persons involved in the selection process must respect and follow the good practices stated within Code of Deontology of the ANR, and in particular the rules pertaining to the confidentiality and conflict of interest. The Code of Deontology can be consulted on the ANR website<sup>4</sup>.

The operational and organisational procedures that apply to evaluation committees and steering committees are stated in documents available on the ANR website.

Lists of committee members of are available on the ANR website<sup>5</sup>.

### 3.1. ACCEPTABILITY CRITERIA

#### IMPORTANT

Proposals not meeting the requirements for acceptability will not be submitted to the evaluation committee and will in no case be granted for ANR funding.

- 1) The proposals must be submitted **within the deadlines, in the required format, duly filled-in.**
- 2) The project **coordinator** should not be a member of the evaluation committee nor of the steering committee of the programme.
- 3) The **duration** of the project must be between 18 to 48 months.
- 4) **Partnership.** This call is open to :  
Research projects in collaboration composed at least of two different partners, whom one at least is a public research organisation (university, EPST, EPIC,...) <sup>6</sup>.

<sup>4</sup> <http://www.agence-nationale-recherche.fr/DocumentsAgence>

<sup>5</sup> <http://www.agence-nationale-recherche.fr/Comites>

<sup>6</sup> See definitions in annex 1.

## 1.1. ELIGIBILITY CRITERIA

### IMPORTANT

Proposals not meeting the eligibility criteria after examination by the evaluation committee will in no case be granted ANR funding.

- 1) The proposal content **must be in adequacy with the themes** of the call, as described in § 1.3.
- 2) The administrative and financial part of the proposal (*document de soumission*) must be submitted **within the deadlines, in the required format, and signed by all partners**.
- 3) **Type of research:** this call for proposals is open to:
  - Fundamental research projects<sup>7</sup>,
  - Industrial research projects<sup>16</sup>,

The projects considered as “experimental development” are not accepted in this call, as they are eligible in the call ECO-INDUSTRIE initiated by DGCIS, ADEME and OSEO on similar topics.

- 4) French-Chinese proposals have to follow the procedure described in annex 2.

## 1.2. EVALUATION CRITERIA

### IMPORTANT

Research proposals successfully meeting the criteria of acceptability and the criteria of eligibility will be evaluated according to the criteria specified below. (The external review grid and the evaluation committee grid may be consulted on the web site announcing the call, see address p1.)

- 1) The proposal's relevance to the themes stated in the call
  - degree of fit with the themes of the call (cf. § 1.3),
  - degree of fit with the recommendations provided in the call (cf. § 3.4).
- 2) Scientific and technical quality
  - scientific excellence relative to state-of-the-art in the project's field,
  - innovative character of the proposal, in terms of both technological innovation and opening new perspectives compared to the status quo,
  - solutions to technical barriers,
  - degree of integration of various scientific sub-fields or fields.
- 3) Methodology, and quality of project conception and coordination

---

<sup>7</sup> See definition of categories of research projects annexed to this document § 1.2.

- the positioning of the proposal relative to state-of-the-art and technological innovation,
  - the project's scientific and technical feasibility, and the methods chosen,
  - the way the project is build, the rigor with which deliverables have been defined, the identification of milestones,
  - the quality of the project coordination plan (the financial and legal management of the project) including the experience and level of involvement of the principal coordinator,
  - strategies for applying and transferring the final results of the project.
- 4) Overall impact of the project
- Interest in term of environmental challenge (to be quantified as much as possible)
  - Potential for use or integration of project findings by the scientific or industrial communities or society, the impact of the project in terms of new knowledge production,
  - the outlook for industrial or technological application or a demonstration of economic and commercial potential, possible business plans resulting from findings, integration into industrial activity, the credibility of the declared transferability,
  - value of the project for society, e.g. public health, etc.
  - when appropriate, the response to questions of environmental impact.
- 5) Quality of the consortium
- the level of scientific excellence and expertise of the research teams involved,
  - the degree of fit between the partnership and the scientific and technical objectives,
  - the degree of complementarity among partners,
  - the degree of openness to other actors,
  - an active role for private sector partners.
- 6) Adequate project funding / project feasibility
- realistic schedule
  - means well-adapted to project implementation,
  - justification of amount of funding requested in light of the project,
  - costs of coordination in proportion to the project,
  - justification of personnel needs,
  - justification of temporary personnel needs (interns, Ph.D students, post-docs),
  - proper estimate of the amount of needed equipment purchase and investment,
  - proper estimate of other budget items (researcher mobility, sub-contracting, supplies...).

### **3.2. MAIN RECOMMENDATIONS**

#### RECOMMENDATIONS ABOUT THE PROPOSAL CONTEXT (CRITERIAS 1 ET 2)

Proposal should carefully present industrial and economical perspectives of the targeted technologies (analysis of value, market size, term for market implementation, competition with other technologies...).

Applicants will have to detail the potential impacts of the targeted technologies on the environment (use of rare materials, energy balance...), on health and on safety (potential toxicity of materials, in relation with REACH regulation, fire resistance...). Life cycle assessment (and evaluation of recycling potential) of those technologies will have to be considered in the work program, if necessary.

#### RECOMMENDATIONS ABOUT THE PROJECT OUTCOMES (CRITERIA 4)

Applicants must clearly detail the ways their technologies will be implemented, the expected outcomes and the agenda towards the market implementation. Proposals will have to describe with some quantitative informations, the potential impact of of the project in economical and environmental aspects.

#### RECOMMENDATIONS ABOUT THE CONSORTIUM (CRITERIA 5)

In public-private partnerships, one expect in general for private partners a the total manpower (in man.month) for both permanent and temporary staff allocated to the project to represent about :

- ⊙ 20 to 30% for basic research projects,
- ⊙ 30 to 60% for industrial research projects,

#### CONDITIONS FOR FUNDING TEMPORARY PERSONNEL

For the present programme, temporary personnel (interns, post-docs, short-term contracts, temporary workers, etc.) may be used for the project. Except in particular cases, the overall temporary personnel contribution as measured in person-months should respect a reasonable equilibrium of the total work force effort represented by the project.

#### RECOMMENDATIONS CONCERNING ANR FUNDING REQUESTS

In the context of the present call for proposals, applicants are encouraged to file proposals that justify ANR funding to a level between 500 k€ and 1500 k€, including for fundamental research proposals. This recommendation does not exclude the possibility that projects will be funded for amounts either below or above this range.

#### RECOMMENDATIONS ABOUT THE APPLICATION FOR LABELING FROM A COMPETITIVENESS CLUSTER

Project consortiums that intend to apply for a competitiveness cluster label are invited to contact the cluster during the proposal preparation phase and before the before the submission of the proposal to ANR.

## 4. GENERAL FUNDING MECHANISMS

### 4.1. ANR FUNDING

#### TYPE OF FUNDING

Funds allocated by the ANR to each partner will take the form of a non-reimbursable grant, according to the methods stipulated in "Regulations relative to the means of allocation of ANR funds", which may be consulted on the ANR website<sup>8</sup>.

ANR funding is limited to projects led by researchers residing in France, and to laboratories affiliated with French public research organisations or institutions of higher education or French institutions located abroad, including any international associated laboratories. The participation of international partners is nevertheless possible as long as each international partner funds its own participation in a project.

**IMPORTANT**

The ANR will not allocate grants lower than 15,000 € to any participant in a project.

#### PERCENTAGE OF PRIVATE SECTOR FUNDING

Concerning private enterprises, the maximum percentage of ANR funding for this call is as follows:

Type of project	Maximum %age of funding to SMEs	Maximum %age of funding to non-SME firms
Fundamental research <sup>9</sup>	45 % of eligible expenditure	30 % of eligible expenditure
Industrial Research	45 %* of eligible expenditure	30 % of eligible expenditure

(\* ) For projects that do not call for real collaboration between a firm and a research organisation, the maximum percentage is 35 %.

There is real collaboration between a firm and a research organisation when the research organisation underwrites at least 10% of costs on which the funding request is based and when it retains the right to publish the results of the research, whenever these results were obtained from the organisation's own research efforts.

**Note:** The unfunded portion of R&D expenditure associated with a project may qualify for funding under the CIR (French research tax credit program - article 244 quater B of the "code général des impôts").

<sup>8</sup> <http://www.agence-nationale-recherche.fr/DocumentsAgence>

<sup>9</sup> See definitions of research categories annexed to this document § 6.3.

For further explanations on the procedures, please check the following site :

<http://www.agence-nationale-recherche.fr/CIR>

The completed and signed forms of CIR certificates should be addressed by mail to the following address :

ANR  
Département DPC/CIR  
212 Rue de Bercy  
75012 Paris cedex

#### **IMPORTANT**

The incentive effect of ANR funding allocated to a firm other than an SME ought to be established. Therefore non-SMEs selected for funding under the present call will be asked to provide the elements necessary for evaluating this aspect, during the negotiation phase of the administrative and financial elements of proposals.

#### CONDITIONS FOR FUNDING TEMPORARY PERSONNEL

For the present programme, temporary personnel (interns, post-docs, short-term contracts, temporary workers, etc.) may be used for the project. Except in particular cases, the overall temporary personnel contribution as measured in person-months should not exceed 50% of the total work force effort represented by the project.

#### PHD SCHOLARSHIPS

For that call, PhD scholarships are authorized by ANR. The funding of a PhD scholarship does not prejudice of the agreement of the university PhD administration. PhD students has to be considered as temporary personnel in the project proposal (see the condition above).

#### **4.2. CONSORTIUM AGREEMENT**

For projects involving a partnership between a research organisation and a commercial firm<sup>10</sup>, the partners must reach an agreement, under the auspices of the principal coordinator, stipulating arrangements covering:

- the distribution of tasks and of the human and financial means devoted to the deliverables;
- the sharing of intellectual property rights linked to findings obtained within the framework of the project;
- rules concerning publication / dissemination of results;

<sup>10</sup> See definitions annexed to this document § 1.1.

- the application and transfer of project findings.

This set of agreements will help determine any indirect funding likely to impact the calculation of the maximum EU-authorized funding level as stipulated in the EU Community framework for State aid for research, development and innovation (referred to hereafter as "the Community framework").

The lack of indirect funding will be assumed in cases where at least one of the following conditions is fulfilled:

- the commercial firm beneficiary, within the Community framework, underwrites the entirety of project costs;
- where results cannot be protected by intellectual property rights, the research organisation beneficiary is free to use and disseminate widely these results;
- where results can be protected by intellectual property rights, the research organisation beneficiary retains ownership of these rights;
- the commercial firm beneficiary, within the Community framework, benefits from a result developed by a research organisation beneficiary and remunerates the latter to a level in keeping with market conditions.

The principal coordinator will transmit a copy of this agreement to the ANR or the support unit along with a signed statement by the partners attesting to the compatibility of the agreement with EU regulations governing indirect funding as well as with the ANR contract. **This transmittal should take place within a maximum of 12 months after the date of the act officially allocating the aid.**

The statement therefore must certify either that the consortium agreement fulfils one of the conditions listed above or that all intellectual property rights linked to project findings are allocated to the various partners in a way that adequately reflects their respective interests and their level of participation including in project funding. Lacking this assurance, the consortium agreement may be considered as a form of indirect funding, leading to a reduction in the percentage of funding allocated by the ANR.

#### **4.3. COMPETITIVENESS CLUSTERS**

The steering committee will take into account that a project has received a label awarded by a Competitiveness Cluster. It should be kept in mind that all partners do not need to be members of a Cluster in order for the project to be labelled as a "Competitiveness Cluster project".

The partners of a project benefiting from a label awarded by one or more Clusters and which are located within the geographic zone of this(ese) Cluster(s) may receive a supplemental allocation for project funding from the ANR.

The procedure is as follows:

- The form to be used to demonstrate that a project has been awarded a label by a Competitiveness Cluster has to be completed on the ANR online submission web site.
- The coordinating partner has to transmit the form attesting to labelling by the Cluster, **Part 1 having been duly completed**, in electronic form to the governing structure of each of the Clusters solicited.
- For Cluster-labelled projects, the governing structure of the concerned Clusters is to deliver to the ANR the form attesting to quality certification, **Part 2 having been duly completed**, in **two versions**: a **signed** print version delivered by courier service, and an electronic version in Word format (\*.doc). (The postal and electronic addresses are shown on the form.)
- The signed print version of the Cluster label verification form is to be received by the ANR **no later than two months** after the closing deadline for the call for proposals.

#### 4.4. OTHER FUNDING STIPULATIONS

Partners of projects funded by the ANR are still under the same obligation to respect all the regulations, ethical codes and standards of good practice that apply to their field, regardless of the source of funding.

The principal coordinator, acting on behalf of all project partners, is bound to inform ANR in a timely manner of any change likely to affect the project's content, partnership structure or schedule and that occurs between proposal filing and the publication of the final list of selected projects.

## 5. RULES FOR APPLYING

### 5.1. CONTENTS OF THE APPLICATION FILE

The funding application file must include all elements needed for the scientific and technical assessment of the project. It must be duly filled-in by the closing date for applications, which is indicated on p2 of the present call for proposals.

#### IMPORTANT

No additional element to an application will be accepted after the deadline indicated on p2 of the present call for proposals.

A complete research proposal comprises two distinct completed forms:

- The *“document de soumission”* is a description of administrative and budgetary structure. It has to be filed up online on the submission website
- The *“scientific document”* is the description of the scientific and technical content. The *“scientific document”* is available on the webpage of the call as mentioned on page 1.

It is recommended to generate a scientific and technical description of the project in English, In cases where the scientific and technical description are generated in French, an English translation may be requested in time for use in later stages of proposal evaluation.

## **5.2. TRANSMITTAL OF THE APPLICATION FILE**

**THE SUBMISSION PROCEDURE HAS TO BE DONE ONLINE USING ANR'S  
SUBMISSION WEBSITE AS INDICATED ON PAGE 1**

1) ONLINE SUBMISSION, must strictly :

- be completed by the call closing date indicated in page 1, using the web links indicated on the webpage of the call.

**AFTER COMPLETION OF ALL THE INFORMATIONS FROM THE PROJECT PARTNERS, THE  
COORDINATOR HAS TO VALIDATE THE ONLINE SUBMISSION PROCESS, PRESSING THE BUTTON  
ON "SOUMETTRE"**

An official receipt in either paper or electronic form will be sent to the principal coordinator by the ANR or by the support unit after the closing of the call for proposals.

**After validation of the online submission process, the project proposal can be modified until the closing date of the call.**

Only the data contained in the submission website at the closing deadline will be taken into account.

2) TRANSMITTAL OF THE PRINTED VERSION of the administrative and financial documents (*document de soumission*) printed and signed from all project partners.

This document must be sent by registered mail with return receipt later than the date indicated on page 2, the seal of the postmark, to the address indicated on page 2.

# ANNEX

## 1. GLOSSARY

### 1.1. – TYPES OF RESEARCH

- **“Fundamental research”** shall mean an activity designed to broaden scientific and technical knowledge not linked to industrial or commercial objectives (JOCE 28/02/2004 L 63/23).
- **“Industrial research”** shall mean planned research or critical investigation aimed at the acquisition of new knowledge, the objective being that such knowledge may be useful in developing new products, processes or services or in bringing about a significant improvement in existing products, processes or services (JOCE 28/02/2004 L 63/23).
- **“Pre-competitive development”** shall mean the shaping of the results of industrial research into a plan, arrangement or design for new, altered or improved products, processes or services, whether they are intended to be sold or used, including the creation of an initial prototype which could not be used commercially. This may also include the conceptual formulation and design of other products, processes or services and initial demonstration projects or pilot projects, provided that such projects cannot be converted or used for industrial applications or commercial exploitation. It does not include the routine or periodic changes made to products, production lines, manufacturing processes, existing services and other operations in progress, even if such changes may represent improvements (JOCE 28/02/2004 L 63/23).

### 1.2. PROJECT ORGANISATION

For each project a coordinator will be nominated for each country, in case of multi-national projects, only one of them will be the principal coordinator of the whole project. Each partner should nominate a scientific and technological responsible.

**Coordinating partner:** the parent research organization or company of the coordinator.

**Principal coordinator:** the person responsible of the scientific, technical and financial coordination of the project, establishing and formalizing the collaboration between the partners, the production of project deliverables, the meetings progress and the communication of the results.

**National coordinator:** the person responsible of the scientific, technical and financial coordination of the project at national level.

**Partner:** research unit or enterprise.

**Scientific and technological responsible:** he will be the principal contact with the principal and national coordinators and will be in charge of the partner's work packages deliverable.

### 1.3. DEFINITIONS FOR ORGANISATIONS

**Research organisation**, an entity, such as an university or a research institute, whatever is its legal status (public or private) or its mode of financing, the first purpose of which is to carry on basic or industrial research activities or experimental development and to disseminate their results by publication, training or transfer technology; their profits are entirely reinvested in these activities, results disseminations and/or in teaching; enterprises or private companies which can exercise an influence on such an entity, for example in their quality of shareholder or member, will not benefit from any privileged access to its research capacities or to the results that have been produced.

Technical centers, except if duly motivated, are considered as research organisations.

**Enterprise**, is defined as an organisation having an economic activity.

**Small and medium-sized enterprise (SME)**, is defined according to European Commission. A small enterprise fewer than 50 and a medium-sized enterprise fewer than 250, and with an annual turnover lower than 50 M€ or an annual balance sheet lower than 43 M€.

**Micro-enterprise**, is defined as an SME with fewer than 10 employees, and with an annual turnover or an overall annual balance sheet of no more than 2 M€.

### 1.4. OTHER DEFINITIONS

**Effect of incentive:** to have an effect of incentive means, at the end of the common contract, that the grant has to activate for the recipient, a change in behaving bringing into an intensification its activities of Research and Development: the grant must have as a consequence to increase the size, the reach, the budget or the rhythm of Research and development activities. The effect of incentive analysis will be based on the comparison of the situation with and without granting, starting from a questionnaire that the company will be obliged to fill up. In this respect, several indicators will be used: total cost of the project, the workforce of Research and Development allocated to the project, the project scale, the risk degree, increase of work risks, the increase of Research and development expenses in the private company, ...

**Working time of the researchers employed by University** (or enseignants-chercheurs, specific for France): the percentage of working time of this type of researchers is based on the time spent for research (considered as 100 %). Hence, a researcher who dedicates his(hers) whole research time to a project during one year will participate to this project for 12 man.month (no matter what is the time spending in teaching). However, for calculating the total cost of the project, his(hers) salary will be added for 50 %.

## 2. SUBMISSION AND EVALUATION CRITERIA FOR FRANCO-CHINESE PROJECTS

On November 12, 2009 the ANR signed an agreement with the Ministry of Science and Technology of the People's Republic of China (MOST) for jointly-funded research projects in the area of water. The Chinese Research Academy of Environmental Sciences (CRAES) is the Chinese contact organization, as approved by the Chinese Ministry of Science and Technology, for this call for proposals.

### 2.1. FIELDS OPEN TO FRANCO-CHINESE PROJECTS

Chinese representation has identified the following themes of interest (non-exhaustive):

- Technologies for urban hydrology
- Methodologies and technologies for risk assessment concerning public health, environment, emerging compounds, production of drinking water
- Advanced technologies for water treatment: membrane bioreactors; processes tied to oxydation; intensive/extensive processes for urban and rural waste-water treatment, etc.
- “Matter and/or energy” valorization of the contents of waste water (C, N, P)
- Re-use of treated waste water
- Techniques for treatment of urban or agricultural effluents based on microbial ecology
- Conservation of coastal waters
- Seawater desalinization techniques for the production of drinking water and recuperation of various salts.

### 2.2. SUBMISSION CRITERIA

- Only proposals submitted to the ANR via the 2010 ECOTECH Call for Proposals will be accepted. French partners must abide by the eligibility criteria of the ANR program “Sustainable Production and Environmental Technologies – ECOTECH” for all research projects seeking funding.
- On the Chinese side, only joint proposals related to the “Major Chinese Project for Controlling Water Pollution” will be accepted. Chinese partners must abide by the eligibility rules established by MOST and CRAES for the funding of projects.
- Joint proposals should be submitted to CRAES by the Chinese partners and to the ANR by French partners within the time limits established by the ECOTECH Call.
- Joint proposals must be written in English.
- Each joint proposal must designate a Project Coordinator in France and a Project Coordinator in China.
- Joint proposals are to be filed using the forms proper to each of the two signatory organizations.

### **2.3. SPECIFIC REQUIREMENTS FOR FRANCO-CHINESE PROPOSALS**

Joint proposals must include (as part of the scientific documents for the French filing):

- An explanation of the value added that is expected from the collaboration
- A clear description of the implementation of the collaboration (distribution of research tasks and methods for implementing the project)
- A description of how responsibilities are to be shared between the partner research teams
- A joint project budget including the individual budgets of each team, French and Chinese. The budget of each team should be established according to standard procedures for the respective signatory organization to which the proposal is to be submitted (the ANR or MOST and CRAES). The research program should include substantiating information concerning the funding requested, for each element.
  
- A description of:
  - ongoing research activities of the respective research teams, French and Chinese, especially those activities that constitute the base for the proposed research;
  - effects of the proposed project for reinforcing long-term scientific and technological collaboration between France and China;
  - the thinking behind the arrangements for handling intellectual property rights and know-how stemming from the joint project;
  - short curricula vitae of the principal French and Chinese researchers implicated by the joint project (education and training, past and present functions, affiliations with organizations or associations relevant to the project). No c.v. should be longer than a half-page;
  - a bibliography showing the five best articles or other publications by the main researchers of the partner teams, as well as a short list of other research results (patents, licences, etc.).

### **2.4. EVALUATION CRITERIA**

- 7) The ANR and the CRAES will carry out evaluation of proposals according to the own evaluation procedures and will establish a rank order based on scientific quality and on the pertinence of each proposal.
  
- 8) The evaluation criteria for the final ranking of Franco-Chinese projects are the following:
  2. Scientific quality and innovative nature of the joint research program
  3. Added value expected to accrue to the collaboration
  4. Feasibility of the joint research program
  5. Scientific competency and expertise possessed by partner teams
  6. Cooperative balance between the French and Chinese teams