Research Fund

Preventing Long-Term Exposure to Harmful Substances and Mitigating its Impacts

Call for proposals

May 2021

Preventing Long-Term Exposure to Harmful Substances and Mitigating its Impacts

Pollution, arsenic, asbestos, benzene, cadmium, dioxin, inadequate or excess fluoride, lead, mercury, and highly hazardous pesticides: the World Health Organization (WHO) indicates these 10 chemicals to be of major public health concern[1] – and for a good reason. **The global number of premature deaths due to outdoor air pollution alone is projected to increase from 3 million people in 2010 to a total of 6 to 9 million people in 2060.[2]**

In addition to these chemicals, health scandals around bisphenol A, phthalates and endocrine disrupting chemicals (EDCs) in general showed that **toxic substances can be found everywhere in daily life,[3]** from food, cosmetics and household cleaners to prescription and over-the-counter drugs, gasoline, alcohol and even in paper receipts. This is even the case in substances to **which individuals knowingly expose themselves**, such as study and test-taking drugs like Adderall and Ritalin since their long-term impacts on users are not yet known.[4] **And the exposure to harmful substances starts at a young age.** In 2011, the U.S. National Cancer Institute even reported that "to a disturbing extent, babies are born "pre-polluted."[5]

The **cost of inaction against harmful chemicals poses a threat to public health and the economy.** The health costs of exposure to EDCs, for instance, are estimated to be at least 163 billion euros per year in Europe,[6] meanwhile human exposure to preventable environmental chemicals **is estimated to cost 10% of the global GDP in health costs.**[7] Furthermore, with hospital admissions due to air pollution projected to triple from 3.6 million in 2010 to 11 million in 2060 globally[2], exposure to harmful substances will **eventually impact health system response**. Moreover, certain chemicals can act at very low doses, with exposure causing irreversible health conditions such as hormonal cancer, metabolism disorders like obesity and diabetes, or behavioral disorders, which will only further weigh on health systems. Understanding exposure risk will help prevent diseases and ill-health[8] while allowing to adapt certain norms and regulations to actual harmful levels. Some research has already proven that even levels of air pollution below the WHO recommendations are linked to higher mortality.[9]

In addition to direct health costs, the **long-term exposure to harmful substances can impact the entire economy in several ways.** Beyond a higher mortality rate and additional health expenditures due to illnesses, it affects both agricultural yield and labor productivity. In 2060, lost working days due to air pollution are projected to be around 3.75 billion days at the global level, and total annual market costs of outdoor air pollution are projected to rise from 0.3% in 2015 to 1.0% by 2060.[10] **Indirect impacts** such as welfare costs,

[1] World Health Organization. Preventing Disease Through Healthy Environments ACTION IS NEEDED ON CHEMICALS OF MAJOR PUBLIC HEALTH CONCERN.2010

[2] OECD. POLICY HIGHLIGHTS The economic consequences of outdoor air pollution. April 2016

[3] Vogel SA. The politics of plastics: the making and unmaking of bisphenol a "safety". Am J Public Health. 2009.

[4] Heinz Steiner, Vincent Van Waes, Addiction-related gene regulation: Risks of exposure to cognitive enhancers vs. other psychostimulants, Progress in Neurobiology, Volume 100,2013.

[5] National Cancer Institute. President's cancer panel annual report 2008-2009. Reducing environmental cancer risk: What We Can Do Now. April 2011

[6] Endocrine Disruptors: From Scientific Evidence to Human Health Protection. European Parliament Think Tank, 2019

[7] Grandjean, P., Bellanger, M. Calculation of the disease burden associated with environmental chemical exposures: application of toxicological information in health economic estimation. *Environ Health* **16,** 123 (2017).

[8] HEAL, EU chemicals strategy petition

[9] Meng X, Liu C, Chen R, Sera F, Vicedo-Cabrera A M, Milojevic A et al. Short-term associations of ambient nitrogen dioxide with daily total, cardiovascular, and respiratory mortality: multilocation analysis in 398 cities. 2021

[10] OECD. POLICY HIGHLIGHTS The economic consequences of outdoor air pollution. April 2016

changes in trade patterns or reallocation of the factors of production across the economy **might be harder to measure and assess but will clearly be even more costly.** On their own, welfare costs associated with the premature deaths from outdoor air pollution are projected to rise from USD 3 trillion in 2015 to USD 18-25 trillion in 2060.[11]

The evolution of industries using these chemicals is also at stake. The toxicological properties of chemical substances found in products are often not intentional, but rather the result of insufficient consideration during the development phase of a product as well as a limited understanding of toxicology among the chemists involved in developing new substances.[12] To limit both environmental and health impacts, research around the **development of green toxicology** is of major importance as is the **prevention of the emission of hazardous chemicals**.

For businesses, significant latent liability could arise in the future due to the confluence of increasing long-term exposure with the growing research and evidence of negative impacts of long-term exposure to these substances. These harmful substances can carry reputational, regulatory, and legal risks due to their environmental implications and large-scale impacts on community health and well-being. Research can provide policy makers and businesses with reliable data for risk assessment and preventive action to reduce hazards.

The AXA Research Fund is looking at supporting post-doctoral research in understanding the impact of harmful substances on human health, and in investigating the way they are – and could be – regulated, as well as the role of public health policy and the costs for the economy and the insurance business.

Projects will focus on issues around – but not limited to – the following areas:

- the specific **study of the next concerning substances and their impact on human health and the environment**,
- the development of **green toxicology and prevention around hazardous chemicals,**
- the **role of public policy, especially looking comparatively,** in developing actions to protect human health and to measure the effects of these substances,
- **economic costs** of exposures to concerning substances, and recommendations to be made for policy makers and the insurance business.

The final objective is to develop better knowledge of harmful substance risk for human health, inform and optimize public health policy, and feed insurance risk models and investment strategies.

[11] Ibid

[12] Crawford SE, Hartung T, Hollert H, et al. Green Toxicology: a strategy for sustainable chemical and material development. Environ Sci Eur. 2017.

AXA Fellowships Guidelines

The AXA Research Fund's mission is to support outstanding researchers and it is committed to improving peoples' lives through innovative research in areas of Climate & Environment, Health, and Socio-Economics.

AXA Research Fund

AXA Fellowships aim at supporting promising early-career researchers**, defined as no more than five years past the completion of their PhD,**[13] on a topic aligned with AXA's priorities and societal challenges. The support of AXA Research Fund should be transformative for the researcher and the advancement of their field.

Duration

An AXA Postdoctoral Fellowship is awarded for a period of **2 years**.

Institution eligibility

The project calls are global. However, the AXA Research Fund partners with academic institutions only; thus, NGOs, governmental bodies, foundations, independent research centers, cultural institutions (such as museums), hospitals are not eligible.

Each institution can present at most ONE CANDIDATE (and not one per department, faculty, or laboratory). **In case of several Expressions of Interest submitted from a single institution, all applications would be disqualified.**

Institutions hosting an AXA Chair cannot request an extra Post-Doctoral fellowship for a researcher working on the AXA Chairholder's team.

Researcher

Candidates should be of the highest caliber and have demonstrated outstanding research achievements, as evidenced by the usual indicators for assessing academic excellence such as research outputs (e.g., publications), research activities (e.g., organizing networks, being involved in communities) and research impact (e.g., policy report, specific recognition through awards, etc.).

Candidates must be awarded their PhD before they submit their Expression of Interest. AXA Fellowships aim at supporting promising early-career researchers who hold a PhD (but for no longer than five years).[14]

Research program

The research program should demonstrate its scientific originality and innovative nature and have the potential to contribute to a step change in the considered field. It is the responsibility of the institution to demonstrate the relevance of the proposed research topic to the AXA Research Fund.

Engagement and Obligations

It is a requirement that researchers would be proactive in engaging science with society when supported by the AXA Research Fund and use an open-data framework when applicable. Our researchers commit to sharing their project and communicating their research to a broad audience, supported by the AXA Research Fund. In addition, funded researchers agree to provide both an annual and a final project report, as well as committing to sharing their research through speaking engagements in collaboration with the AXA Research Fund. Annual and final financial reports will be requested as well.

[13] There is a flexibility of 6 months regarding PhD date (i.e. PhD max 5 full years + 6 months), at the Expression of Interest date (i.e., May 25, 2021) i.e., PhD awarded after **November 25, 2015**

[14] There is a **flexibility for maternity/paternity leave: 6 months per child**. (For example, a candidate who has three children can take into account 18 months).

AXA Support for Dissemination and Career Development

The AXA Research Fund will provide support through proposed training sessions related to science communication, media, finance and management, and will also support dissemination and outreach activities. Furthermore, attention will be given to the opportunity for the grant to deliver a significant step-change in the career of the grantee.

Diversity

Diversity will be an important criterion in the selection process, as applied to the research topic, gender and geography.

Budget

An AXA Fellowship is awarded for a maximum amount of **125,000€ in total, to be spent over the two years**. It is the applicant's responsibility to submit a carefully calibrated budget, appropriate for the ambition of the research program and justified in a detailed and coherent manner. The budget will help cover:

- Annual salary of the researcher (based on institution internal policy)
- Equipment/resources (databases, survey costs, consumables, etc.), academic activities (conferences, workshops, fieldwork, etc.)
- Outreach activities (beyond academic audiences).

Any other type of costs not listed above should be justified in the application template. **No overhead costs can be eligible**. No additional budget will be granted. Budget reallocation during an ongoing project must be strongly justified.

Host institutions will be expected to participate in the AXA Fellowship's general funding with studentships, PhD support and material resources related to the research program. The institution should demonstrate this participation in the section dedicated to the budget in the application form. Grants should not substitute for the host institution's responsibilities vis-à-vis its researchers. As a result, the grant cannot be used to procure basic laboratory equipment.

Ethics

The AXA Research Fund places extremely high importance on the ethics of the work it supports. Programs are required to comply fully with all relevant ethical review processes and for this compliance to be evidenced. Cases of scientific misconduct (such as fabrication, falsification, plagiarism or of inappropriate behavior towards staff or other parties) will be considered as breaches of the AXA ethical principles[15] and will be excluded from funding.

Intellectual property

The researcher and the host institution remain fully independent to conduct the research project. AXA will not claim any right to the ownership or use of the results.

[15] AXA Group Compliance and Ethics Guide, 2011: https://www.axa.com/en/newsroom/publications/compliance-ethics-guide

Timeline & Application process

The AXA Research Fund's evaluation process has been designed to assess scientific excellence. The evaluations are monitored to ensure transparency, fairness and impartiality in the treatment of proposals.

The AXA Research Fund partners with independent external providers to carry out the peer review process in accordance with criteria defined by the AXA Research Fund, the results of which are submitted to the Scientific Board for final selection. Please note that:

- The complete application must be submitted in English, on time, and online. It must respect the template structure and the page limit.
- The research topic must fall within the scope of the eligible topic focus.
- The candidate must submit a free-standing independent research project involving full-time work for the duration of the fellowship (with an exceptional acceptance of up to 20% time dedicated to teaching).

Timeline

Host institution's phase	**Step 1 - Registration** *Only if your institution is not already registered on the AXA Research Fund's online platform.* *Registrations must be submitted at least 5 days before the Expression of Interest's deadline (see below)*	**May 3, 2021 – May 20, 2021**
	Step 2 - Expression of interest *On the AXA RF platform*	**May 3, 2021 – May 25, 2021** **4 PM Paris time**
Researcher's phase	**Step 3 - Research proposal submission** *On the ESF platform, our partner organization (online link to be provided on due time)*	**May 27, 2021 – June 24, 2021** **4 PM Paris time**
	Step 4 – Rebuttal *On the ESF platform*	**September 21, 2021 – September 28, 2021** **Noon Paris time**
AXA Research Fund	Results announcement by email to the candidates and published on our website: https://www.axa-research.org/fr	**December 15, 2021**

Projects selected for funding are expected to start between December 2021 and September 2022.

Application process

Step 1 – Registering

To apply for the AXA Fellowship grants, academic institutions must be registered on our platform: https://institution.axa-research.org/. You can check if your Institution is already registered in the database via the above link. **If your institution is already on our database, you can skip the registration and your Institution's operational contact can log in directly using the login details they defined.**

Institutions should appoint a single point of contact ("Operational Contact") who will handle relations with AXA Research Fund and who will be responsible for candidate's application.

Step 2 – Expression of Interest ON OUR ONLINE APPLICATION PLATFORM

To submit an online Expression of Interest, host institutions need to follow the steps below:

1/ Log onto our online application platform: https://institution.axa-research.org/
2/ Go to the "Application" tab and click the "Post-doc" link to go to the "Expression of Interest" page
3/ Click "New" and fill in the online Expression of Interest form. Attach a short CV (3 pages maximum)
4/ Click "Submit"

At the stage of Expression of Interest, you will be requested to provide the following information:

- About the candidate
  - Name, last name
  - Birth date
  - PhD defense date
  - Current university he/she is affiliated with
  - Short CV (3 pages maximum)

- About the research program
  - Project's description: 3000 characters including spaces

You will receive an email confirming that your Expression of Interest has been submitted. If you don't receive the email, please check your spam folder or contact fellowships@axa.com

You will be able to edit your Expression of Interest as long as you have not clicked on "Submit". Once submitted, your Expression of Interest can no longer be edited. The Expression of Interest will be reviewed by the AXA Research Fund team. You will be informed of the decision pertaining to your Expression of Interest by email.

In case there are any questions, institutions are encouraged to contact the AXA RF team, preferably well before the deadline (May 25) to make sure the team will be able to address them. **Please note that the AXA RF office will be closed on Monday, May 24.**

Expressions of Interest received after the deadline, by email or incomplete will not be considered.

Step 3 – Full Application

Academic institutions will be given access to the dedicated ESF platform to nominate their candidate by entering his/her name & email address online. Nominated candidates will be invited to submit their research proposals and will be provided with the necessary information to access the application form. Eligibility criteria of the application call will be screened by our partner organization.
Candidates will have maximum 4 weeks to submit their proposals through the ESF platform. Please note that if the host institution doesn't nominate the candidate on the ESF platform, the candidate won't have access to the platform.

Step 4 – Scientific Assessment

The evaluation of the scientific quality of research proposals is carried out in a fully independent manner by our partner per review organization.

Each application is reviewed by two relevant experts who will assess the candidate's excellence and the research program's scientific quality.

Step 5 – Rebuttal

Candidates will have the opportunity to respond online to peer review experts' comments before their applications are reviewed by the AXA Research Fund. The main purpose of the rebuttal is to provide applicants with the possibility to comment on any potential misinterpretations or misunderstandings that may have been made by the experts while initially assessing their proposals.

Step 6 – Selection & Results Publication

The Scientific Board of AXA Research Fund selects to fund applications based on strength of the scientific case, peer review assessments, the potential of the project, candidate profile and of the institution and overall impact. AXA Research Fund informs the candidates of the decisions by email. Results will also be made available on the AXA Research Fund's website (http:// www.axa-research.org/).

The Scientific Board's decision is final and cannot be appealed. It can neither be disputed nor subject to explanations or justifications.

Participation in the call for applications implies acceptance of the above-mentioned rules.

www.axa-research.org

AXA Research Fund – 25 avenue Matignon, 75008 Paris