AXA Research Fund

Call for Proposals

Ocean, marine biodiversity and conflict prevention

November 2018

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This call for proposals aims at selecting and further supporting up to 6 Postdoctoral Fellowships in marine biodiversity and its related environmental, economic, social, geopolitical, legal and/or technological issues.

The Ocean covers 70% of our planet and contains 80% of life that can be found on Earth, making it the largest repository of biodiversity[1]. It provides priceless natural capital, Earth system services and products on which humankind depends. Often seen as inexhaustible, the Ocean and the biodiversity it hosts are, however, not immune to anthropogenically-driven climate change, plastic pollution, overfishing and other threats. The interactions between these environmental pressures and their cumulative effects are seriously jeopardizing the vital life-support role of the ocean[2], leading to issues such as, but not limited to: more severe extreme weather events, threat to food security, animal and human health, tourism, population displacement and geopolitical tensions. These impacts are already occurring and will be difficult to reverse.

- **Extreme weather events and carbon sink:** Climate change is expected to lead to more extreme and potentially more frequent weather events causing **more severe flooding and erosion** that adversely impact coastal infrastructure and populations[3]. Increasing CO2 concentration is changing pH levels, augmenting ocean acidity with significant consequences for marine life. The combined impacts of warming and acidification are particularly hazardous to coral reefs, which host a quarter of all life in the ocean and form a critical natural infrastructure, **buffering many coastal areas from storm surge**. In addition, many of these coastal ecosystems can **store large amounts of carbon** in salt-laden soils ('blue carbon'), acting as climate change mitigation and adaptation tools. New peer-reviewed studies are placing monetary value in the billions on preserving coastal reefs, seagrass beds, mangroves, wetlands, salt marshes and beaches as they are critical to reducing the costs of damage from major storm events while also providing co-benefits to populations (e.g., water filtration, improving human health and well-being, and protecting biodiversity).

[1] Amanda P. Jaksha, Biodiversity in the Ocean, National Geographic, https://media.nationalgeographic.org/assets/file/one-ocean-chapter-3.pdf
[2] Noone, K., R. Sumaila and R.J. Diaz (eds) (2012). Valuing the Ocean: Preview Summary. SEI: Stockholm, Sweden
[3] IPCC, 2014, chap.30, monetary value of extreme weather events UNISDR 2017
[4] Simpson, S., Blanchard, J., Genner, M., Impacts of climate change on fish, Marine Climate Change Impacts Partnership: Science Review, 2013: 113-124
[5] World Bank, Oceans, Fisheries and Coastal Economics, September 25, 2018, http://www.worldbank.org/en/topic/environment/brief/oceans

- **Food security:** The warming of the ocean also impacts **fish species with distribution moving poleward and into deeper waters[4], with detrimental socioeconomic consequences for communities depending on fishing.** According to the World Bank, fish represents approximately 20% of the average animal protein intake for 3.2 billion of people around the world, and this percentage is even higher in poor countries[5]. In 2015, more than 90% of wild fish stocks worldwide monitored by the FAO were either fully fished or overfished[6]. This issue is further exacerbated by illegal, unreported and unregulated (IUU) fishing[7], which the UN has linked to transnational crimes and human trafficking. Weak legal frameworks governing fisheries within territorial waters, coupled with inadequate and patchy governance in international waters (the high seas), has encouraged unregulated, unreported, and, where laws do exist, illegal fishing to occur, particularly in developing country waters. Perverse subsidies, particularly for fuel and larger engine capacities have also enabled more, larger vessels to exploit domestic and foreign countries' sovereign waters, which can add to economic difficulties for fishing communities, trigger conflicts for resources and foster geopolitical tensions. For example, some fishing fleets operating in the South China Sea are now militarized[8] and it has been hypothesized that overfishing by foreign fleets in Somalia has resulted in the piracy crisis[9].

- **Plastic pollution**: Plastic pollution in the ocean is having important impacts, including **deadly impacts on marine biodiversity.** Marine animals, particularly sea birds and sea turtles, ingest plastic, causing injuries and reducing the storage volume of their stomachs, eventually leading to starvation and death. Plastic releases toxins when it breaks down, which can bioaccumulate in marine animals thus entering the food chain. Plastic on beaches can also affect reproduction of animals and marine mammals and sea birds can die by getting tangled in plastic debris. In addition, plastic pollution **harms coral reefs by transmitting diseases[10]**. Plastics washing up on beaches and in coastal areas can also **impact tourism revenue**. The pervasiveness of plastic therefore represents **an extra threat to marine life, human health, food security, coastal communities' economies and natural infrastructure.**

- **Health:** Coral reef plants and animals have strong potential for the pharmaceutical industry as they produce **valuable chemical compounds used in research and entering the composition of new medicines to treat some the most prevalent human diseases[11]** such as cancer, arthritis, Alzheimer's disease, heart disease, leukemia, lymphoma, and they reduce bacterial infections and

[6]FAO, The State of the World Fisheries and Aquaculture, 2018, http://www.fao.org/state-of-fisheries-aquaculture/en/
[7]Definition of IUU by the FAO available at: http://www.fao.org/iuu-fishing/en/
[8]Valantin, J.-M., The Red (Team) Analysis Society
[9]Farquhar, S., When Overfishing Leads to Terrorism: The Case of Somalia, World Affairs Summer 2017 (April-June), Vol. 21, No. 2
[10]Carrington, D., Billions of pieces of plastic on coral reefs send disease soaring, research reveals, in The Guardian, 25 January 2018. https://www.theguardian.com/environment/2018/jan/25/billions-of-pieces-of-plastic-on-coral-reefs-send-disease-soaring-research-reveals
[11]International Year of the Reef, https://www.iyor2018.org/about-coral-reefs/benefits-of-coral-reefs/

kill viruses[12]. However, there is currently no governance regime in place for access to and benefits from marine genetic resources in international waters and few rules within developing country waters.

- **Tourism:** Emblematic species such as dolphins or turtles, as well as coral reefs, **attract tourists from around the world, representing an essential economic activity for some coastal populations.** It is estimated that global reef dependant tourism is worth 35.8 billion US dollars per year and that visitors equate to approximately 70 million tourist trips equivalents[13]. For some countries such as the Maldives, it represents up to 60% of total tourism revenues and 43% of GDP[14]. The degradation of coral reef is thus directly associated to economic loss for the population in these countries.

- **Population displacement / migration:** Due to more extreme weather events, changes in the distribution of fish and lower economic activities, the likelihood of **coastal populations being pushed to migrate may increase, which, added to population growth and urbanisation,** could exacerbate social tensions and geopolitical unrest.

Despite the considerable ecologic, economic and social benefits provided by marine ecosystem services (e.g., protection of coastal communities against extreme weather events, carbon sink capacity, provision of sea food, and components for essential drugs, etc.), their importance in **preventing tensions** when linked to other factors has hitherto received limited attention. Hence, further research is required to better understand, quantify and highlight the ecosystem services provided by the Ocean and the role of natural capital in conflict prevention.

[12] National Ocean Service, What does coral have to do with medicine? Corals are the medicine of the 21st century, https://oceanservice.noaa.gov/facts/coral_medicine.html
[13] Spalding, M. et al., Mapping the global value and distribution of coral reef tourism, in Marine Policy 82 (2017) 104-113
[14] Ibid.

At the AXA Research Fund, we believe that research holds the key to better understand the interlinkages between ocean health and stable economies, prevent conflict and sustain ecosystem functioning. For 10 years, AXA has financed over 200 projects related to environmental issues.

This call for proposals aims at selecting and further supporting up to 6 Postdoctoral Fellowships in marine biodiversity and the associated environmental, economic, social, geopolitical, legal and/or technological issues. We will look for innovative, transdisciplinary research topics, adopting either a global perspective or focusing on regional challenges and the link between the Ocean, its natural capital and issues such as (but not limited to):

- coastal communities' protection and marine biodiversity from an ecological point of view, particularly related to extreme weather events
- coastal communities' livelihood and marine biodiversity from an economic point of view and links with social, economic and/or geopolitical tensions
- value of 'blue carbon' from fish biomass, seagrass beds, mangroves and coral reefs / the role of deep-sea ecosystems in carbon sequestration and cycling
- plastic pollution, coastal communities' protection and livelihood, and related human and animal health issues
- marine biodiversity and food security, resource conflict, conflict prevention
- marine biodiversity, governance and regulation
- marine biodiversity and sourcing of genetic material for drug components
- use of data and artificial intelligence in the evaluation and monitoring of natural capital, the study of degradation across habitats and regions, and solutions for the management of marine ecosystem services

Guidelines

AXA Research Fund

The AXA Research Fund's mission is to support academic institutions hosting outstanding researchers and committed to improving peoples' lives through innovative research in areas of Climate & Environment, Health, Data & New Technologies, and Socio-Economics. The AXA Research Fund 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 Postdoctoral Fellowships

The AXA Postdoctoral Fellowships are a funding scheme aimed at supporting promising researchers (max. PhD+5 years[15]) on a topic aligned with AXA's priorities and societal challenges. Our support 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 AXA Research Fund will provide grants to academic institutions located within the AXA Community which is composed of the following countries:

Europe	Americas	Africa & Middle East	Asia Pacific
Belgium	Brazil	Egypt	Mainland China
France	Colombia	Morocco	Hong Kong SAR
Germany	Mexico	Nigeria	India
Greece	United-States	South Africa	Indonesia
Ireland		Turkey	Japan
Italy		UAE	Philippines
Luxembourg			Singapore
Poland			South Korea
Spain			Thailand
Switzerland			
United Kindom			

Please note that the AXA Research Fund will not be able to accept applications from institutions located outside of the above-mentioned countries.

[15]There is a flexibility of 6 months regarding PhD date (i.e. PhD max 5 full years + 6 months), at the application date (i.e. December 21, 2018).

Researcher

Candidates should be of the highest calibre 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.).

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 AXA.

Engagement

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 share their project and communicate their research to a broad audience, supported by the AXA Research Fund.

Diversity

Diversity will be an important criterion in the selection process, with regard to research theme, methodology, gender and geography. Furthermore, attention will be brought to the opportunity for the grant to deliver a significant step-change in the career of the awardee.

Budget

An AXA Postdoctoral Fellowship is awarded for a maximum amount of 125,000€. 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. Budget will cover annual salary of the researcher (based on institution internal policy), equipment/ resources (databases, survey costs, consumables, etc.), academic activities (conferences, workshops, fieldwork, etc.) and 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. It is also **necessary that the host institution commits to providing material or other support to the researcher and the project** and that the latter commitment be made clear in the budget proposal.

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[16] and will be excluded.

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.

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

Application process & Timeline

The AXA Research Fund partners with the European Science Foundation (ESF) to carry out the scientific evaluation process. ESF is an established, independent and non-governmental organization dedicated to supporting scientific endeavors. ESF conducts the peer review in accordance with the criteria defined by the AXA Research Fund.

Please note that:

- The application must be submitted in English, on time, online, and complete. It must respect the template structure and the page limit;
- The research topic must fall within the scope of the eligible topic focus as listed above;
- 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)

Application process

- **Step 1 - Expression of interest**

To apply for our scheme, host academic institutions will **first indicate their interest in participating in the call by providing the following details to researchfund@axa.com:**

- **Institution, country, operational contact (title, name, email)**
- **Candidate's name, PhD date (the researcher CV and publications can be specified)**
- **Abstract of the project(s): ideally about 15 lines including title and keywords**

Please note that:

- **Only institutions can apply, applications cannot be directly submitted by individual researchers**
- **Only one candidate can be put forward per academic institution**
- **The candidate can be a researcher already from the institution intending to express its interest OR he/she can move from another institution**

AXA will then provide ESF with the names of the institutions (including contact details), and ESF will send them an invitation to nominate their candidates online.

- **Step 2 – Application**

Academic institutions will be given an access to the **dedicated ESF platform** to nominate only **one candidate** by entering his/her name & email address online. Nominated candidates will be invited by ESF to submit their research proposals and will be provided with the necessary information to access the application form. Eligibility criteria and relevance of the application call will be screened by ESF.

- **Step 3 – Scientific assessment**

The evaluation of the scientific quality of research proposals is carried out in a fully independent manner by ESF. ESF will set up Review Panels in charge of assessing all proposals. Review Panels are composed of renowned scientists and scholars from all over the world with a broad view and knowledge across areas covered by their respective panel. Review Panel members are independently identified, invited and appointed by the ESF office to ensure a balanced coverage of disciplines and scientific cultures.

- **Step 4 – Rebuttal**

Candidates will have the opportunity to respond online to ESF experts' assessment before their applications are reviewed by the AXA Research Fund panels. 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. This rebuttal step is strongly recommended.

- **Step 5 – Selection & results publication**

The Scientific Board of the AXA Research Fund selects applications to be funded based on the scientific case and panels' assessments. As soon as the Board has taken its decision, the AXA Research Fund informs the Institution through the Institution's representative. Results of the campaign will also be made available online (http://www.axa-research.org/). In parallel, the announcement will also be reflected on the dedicated platforms for applicants and institutions, where the outcomes will be published.

Timeline

Full applications must be submitted on the ESF online platform by:

- **December 21, 2018 – 2p.m. C.E.S.T.**

Host Institution phase	**Expression of interest** *by email: researchfund@axa.com*	**November 6, 2018 to November 30, 2018**
	Submitting Candidate names *on ESF online platform*	**December 3, 2018 to December 21, 2018**
Applicant Phase	**Research proposal submission** *on ESF online platform*	**December 3, 2018 to December 21, 2018**
	Deadline for submission of applications	**December 21, 2018**
	Rebuttal Phase	**February 19, 2019 to February 25, 2019**
	Results announcements	**April 2019**

Projects selected for funding are expected to start between April 2019 and January 2020.

Please note that all deadlines above are 2p.m. C.E.T.