

Greening the blue economy – a focus on marine infrastructure and marine energy

**AXA IM Research Award 2024,
in partnership with the AXA Research
Fund**

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Greening the blue economy: A focus on marine infrastructure and marine energy

The ocean is fundamental to life on our planet and to our future. The ocean is an important source of the planet's biodiversity and plays a vital role in the climate system and water cycle. The ocean provides a range of ecosystem services: it supplies us with oxygen to breathe, it contributes to food security, nutrition and decent jobs and livelihoods, it acts as a sink and reservoir of greenhouse gases and protects biodiversity, it provides a means for maritime transportation including for global trade, it forms an important part of our natural and cultural heritage and plays an essential role in sustainable development: a sustainable ocean-based economy and poverty eradication.

UN Ocean Conference 2022

The global ocean covers 71% of the surface of our blue planet. It has long taken the brunt of the impact of human-made global warming. It has absorbed about 90% of the heat generated by rising greenhouse gas emissions trapped in the earth's system and taken in about 40% of carbon emissions, causing devastating impacts and increasing risks on ocean and coastal life and coastal communities' lives and livelihoods.¹

To preserve the ocean's role as a key player in fighting climate change, we must prioritize making our blue economy greener. To this end, it is essential to simultaneously combat the dual challenges of lowering emissions and obtaining a better governance of marine ecosystems. The blue economy encompasses economic activities that aim to utilize marine resources in a sustainable manner, including sustainable fishing, coastal tourism, marine renewable energy, marine biotechnology, and maritime transportation, among others. UNEPFI estimates the blue economy to be worth more than US\$1.5 trillion per year globally. The primary challenge of the blue economy is therefore to balance economic growth with the conservation of marine ecosystems and the promotion of long-term sustainability. In prioritising such practices, we can couple economic development with social inclusion and the improvements of lives and livelihoods, whilst ensuring ocean sustainability.

With more than 80% of world trade (by volume) carried by sea,² the development of more sustainable marine infrastructure and green energy plays a vital role in ocean and planetary health. Currently, marine activities in seaports also account for around 3% of total carbon emissions worldwide.³ The efficient construction and maintenance of ports, harbours and coastal facilities is thus essential for facilitating maritime trade and transportation whilst minimising environmental impact. Furthermore, the expansion of renewable energy sources, such as offshore wind and wave energy, contributes to reducing reliance on fossil fuels and mitigating the environmental footprint of marine activities. Embracing sustainable practices in marine infrastructure and energy is therefore pivotal for fostering economic growth, safeguarding marine ecosystems, and supporting the long-term sustainability of ocean practices.

We recognise science and research have a key role to play to discover new solutions to help the world become more resilient to the impacts of climate change. The fourth edition of the AXA IM Research Award in partnership

¹ [The Ocean | UNFCCC](#)

² *Green infrastructure can protect ports from growing environmental risks. Here's how (No date), World Economic Forum.* Available at: <https://www.weforum.org/agenda/2022/08/ports-green-infrastructure-environmental-risks-climate/> (Accessed: 31 July 2024).

³ Alzahrani, A. et al. (2021) 'Decarbonisation of seaports: A review and directions for future research', *Energy Strategy Reviews*, 38, p. 100727. doi:10.1016/j.esr.2021.100727.

with the AXA Research Fund will thus recognise transformative research that ultimately explores innovations in marine energy and marine infrastructure and natural capital.

AXA IM Research Award focus

This edition of the AXA IM Research award will focus on two main themes of the blue economy: Marine Infrastructure and Marine Energy.

We will look at research projects exploring solutions which will focus on the following areas:

1. **Marine infrastructure and natural capital: enhancing coastal resilience by integrating marine and coastal natural capital solutions into flood defences, coastal protection, and disaster management.**
 - a. Sustainable coastal protections and harbours
 - Explore innovative approaches to designing and maintaining harbours and coastal protections that integrate natural capital.
 - Assess the long-term ecological and economic benefits of using nature-based solutions (e.g., living shorelines, marshes restoration, estuaries conservation).
 - b. Advanced flood defence systems
 - Develop and evaluate cutting-edge flood defence mechanisms that leverage natural landscapes and ecosystems (e.g., wetland and maritime forests restoration, dune stabilization).
 - Investigate the effectiveness of these systems in mitigating flood risks and their impact on coastal communities.
 - c. Evaluating ocean disaster impacts and mitigation strategies
 - Study the impact of oceanic disasters (e.g., tsunamis, storm surges, floods) on coastal infrastructure and ecosystems.
 - Propose disaster resilience strategies that incorporate natural capital to enhance recovery and sustainability.

2. **Marine and hydro energy: from marine natural resources to grid integration - exploring offshore wind, tidal and hydro energy, considering environmental and socio-economic impacts and perspectives.**
 - a. Advancements in marine energy technology
 - Investigate recent technological developments and innovations in marine energy generation (e.g., tidal and wave energy, offshore wind turbines).
 - Assess the efficiency, reliability, and scalability of new hydro energy technologies.
 - b. Mainstreaming marine energy into grids
 - Explore pathways for integrating marine energy sources into existing and future energy grids.
 - Identify technical, regulatory, and economic challenges and opportunities for marine energy grid integration.

- Develop strategies to ensure the stable and efficient distribution of marine energy to mainstream grids.
- Assess how local economies can benefit from grid integration and potentially support local economic diversification.

Nominees applying are expected to demonstrate both the innovation and impact of their research in their selection of area(s).

Award Guidelines

These guidelines provide information for nominators and nominees for the AXA IM Research Award. **This guide may be used as a reference by nominators and nominees. The information presented here overrides any contrary terms that could be found elsewhere.**

If you have any questions, please send an email to: axaimresearchaward@axa-im.com

Nomination rules

- Each nominator can nominate up to two eligible **researchers**.
- Self-nominations are not permitted.
- Family members and relatives cannot be nominated.
- Nominators cannot nominate a researcher from their team or someone they supervise; nor a researcher with whom they have engaged in a co-publication or close collaboration within the past five years.
- Researchers already supported by the AXA Research Fund or by AXA IM cannot be nominated even if their AXA grant has ended.

Researchers' eligibility

The AXA IM Research Award is aimed at supporting an advanced researcher **between PhD + 5 years⁴ and PhD + 15 years maximum⁵**. Candidates should **consider the full application deadline of 18 October 2024 to calculate their PhD date and assess their eligibility.**

The support should be transformative for the researcher and the advancement of their field. **Candidates should be of the highest calibre** and demonstrate **outstanding research achievements**, as evidenced by the usual indicators for assessing academic excellence such as research outputs (e.g. publications), research activities (e.g. organising networks, being involved in communities) and research impact (e.g. policy report, specific recognition through awards, etc.).

⁴ No flexibility for these dates: researchers below PhD+ 5 years and above PhD+15 years are not eligible.

⁵ Career breaks will not be considered, exceptions will only be made for maternity/paternity leave: 6 months per child to be indicated in the CV.

Award amount and allocation

The total amount of the award is **80,000€**. The **money must be exclusively dedicated to research purposes**. The amount of the award will be paid to the university with which the successful researcher is affiliated.

Engagement and obligations

It is a requirement that the successful researcher would be **proactive in engaging science with society** when supported by the AXA IM Research Award and commit to share their research with a broad audience including AXA IM and its clients. See 'Awardee Obligations' for more details.

The successful researcher and AXA IM will enter into a legal contract formalising the award and specifying the obligations of both parties. The award money **must be exclusively dedicated to research purposes**. The amount of the award will be paid to the university with which the successful researcher is affiliated. The contract will require the successful researcher to make themselves available to participate in communications, for example during an event or by dedicating time to film an interview. Additional communications initiatives may be proposed, but the successful researcher will not be required to promote AXA IM in any way. In addition, the successful researcher will agree to provide **a project report after the first year**.

Ethics

Both AXA IM and the AXA Research Fund place extremely high importance on the ethics of the work they support. Programmes 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 inappropriate behaviour towards staff or other parties, for example) will be considered breaches of the AXA ethical principles⁶ and will result in the loss of funding and the retraction of the Award.

Intellectual Property

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

Timeline, Application process & Awardee Obligations

- Nominations and applications must be submitted in English, on time, and complete.
- The research topic must fall within the scope of the topics identified in this document.
- Additional documents beyond those specified will not be considered.

⁶ AXA Group Compliance and Ethics Guide: <https://www.axa.com/en/newsroom/publications/compliance-ethics-guide>

Timeline

Step	Date
Call for nominations	2 September 2024 – 27 September 2024 Nominations received after the deadline or that are incomplete will not be considered.
Full applications by nominees	30 September 2024 – 18 October 2024
Selection	11 November 2024
Results announcement	25 November 2024 Results will be sent by email to nominees and nominators will be informed of the final result if their nominee is selected.

Application process

Step 1 – Call for nominations – For NOMINATORS

A call for nominations across the **Academic Community will be launched to recommend top researchers connected with the topic under investigation.** Nominators will be able to **submit their nomination(s) via the following link:** [Call for nominations open](#) until **27 September 2024.**

Nominators cannot nominate a researcher from their team or someone they supervise; nor can the nominee be a researcher engaged in a co-publication or close collaboration with the nominator within the past five years.

Researchers already supported by the AXA Research Fund or by AXA IM cannot be nominated even if their AXA grant has ended.

Nominators will be asked to provide the following information on the nominee:

- First Name
- Last Name
- Country
- Email address
- Current University / Institution
- PhD defence date (only PhD 5 years – 15 years will be eligible)
- Main research area (50 words)
- Additional information regarding the nominee's main research area
- Reason for nomination (150 words)
- Nominator's name and relationship with nominee
- How did you hear about the AXA IM Research Award?

Step 2 – Screening

The Selection Committee will perform pre-selection to ensure requirements are met.

Step 3 - Nominee Application - For NOMINEES

AXA's teams will approach pre-selected candidates to inform them that they have been nominated for the AXA IM Research Award and propose that they submit an application as well as share the guidelines and requirements for this Award. **Applications must be submitted via email by 18 October 2024.**

Through the application form, the **nominee if she/he so accepts, will provide:**

- Title
- First name
- Last name
- Country
- Email address
- PhD defence date (only PhD 5 years – 15 years will be eligible)
- Current University / Institution
- Current University Country
- Number of citations
- Main research area with brief explanation (250 words)
- Further details on current research projects and motivations (250 words)
- Description of three public speaking examples (150 words)
- List of 5 most impactful publications, indicating the publication dates and media (e.g. journal, conference)
- Self-filmed video introducing themselves and research area (max. 2-3mins) – via a non-public YouTube or Video link.
- Short CV (3 pages maximum including a link to an online full CV)
- Optional: Link to an existing short video presentation

AXA Investment Managers: Acting for human progress by investing for what matters

Our ambition is to be a leading responsible asset manager. This means delivering on our purpose to 'act for human progress by investing for what matters'. This purpose focuses our efforts on acting responsibly as a corporate and investor in reaching net zero targets. By taking accountability for our own footprint and taking steps to reduce it, and as an investor, using our influence and expertise to deliver the investment outcomes our clients need. But we also want to go beyond what is expected of asset managers, where we can. We are

consciously channelling capital to invest for a just and green future, including funding innovative research into sustainability-related risks.

We are committed to going beyond what is expected of us by partnering with academia to back researchers and the scientific community through grants, awards or donations to drive the solutions we need, and ultimately to enable the just and green transition and to overcome the world's sustainability problems. The AXA IM Research Award is the demonstration of a shared commitment and purpose with AXA Group by increasing our role in society and bringing our purpose to life.

Find out more about AXA Investment Managers:

- Website: <https://www.axa-im.com/>
- LinkedIn: <https://www.linkedin.com/company/axa-investment-managers/>
- Instagram: <https://www.instagram.com/axa.im/>
- YouTube: <https://www.youtube.com/@AXAIMCorporate>

AXA Research Fund: Accelerating science to protect what matters

The AXA Research Fund is AXA Group's global scientific philanthropy initiative, launched in 2008 to address the most important issues facing our planet. In line with AXA's purpose to act for human progress by protecting what matters, it supports human progress by funding research in key risk areas related to health, climate & environment, and socio-economy and helping inform public and private decision-making based on science. The AXA Research Fund seeks to address the challenges of our society and our planet by funding transformative research, disseminating findings, and promoting collaboration among relevant stakeholders. Since its inception, the Fund has committed over 256M€ to support over 740 research projects in 340 leading academic institutions worldwide.

Find out more about the AXA Research Fund:

- Website: <https://www.axa-research.org/en>
- LinkedIn: <https://www.linkedin.com/showcase/axa>
- Twitter: <https://twitter.com/AXAResearchFund>
- YouTube: <https://www.youtube.com/@AXAResearchFundLive>
- Newsletter: register via axaresearchfund.newsletter@axa.com