

Summary of the seminar

**Knowing, anticipating and adapting to climate change:
what are the challenges for France?**





The Defence and Climate Observatory, launched in December 2016, is tasked with studying climate-related security and defence issues.

The Observatory is coordinated by IRIS under the contract carried out on behalf of the Ministry for the Armed Forces' Directorate General for International Relations and Strategy (DGRIS). The Observatory's multidisciplinary and crossdisciplinary team gathers researcherfellowsspecialised in international relations, security, defence, migrations, energy, the economy, climatology and health. It is led by two scientific coordinators: Julia Tasse and François Gemenne.

The Observatory is strong of multiple partnerships with European partners (Netherlands, Luxembourg), international partners (Australia, United States, India), international NGOs, and national and international public bodies. Such initiatives enabled strengthening cooperation on climate issues and their security implications.

The Defence and Climate Observatory produces reports and notes, organises restricted seminars as well as public conferences, and hosts the podcast « Sur le front climatique »

www.defenseclimat.fr/en

The Ministry of the Armed Forces regularly calls upon outsourced studies from private research institutes, according to a geographical or sectoral approach that complements its external expertise. These contractual relationships are part of the development of the defence prospective approach, which, as the last White Paper on Defence and National Security underlines, *"must be able to rely on independent, multidisciplinary and original strategic thinking, integrating university research as well as specialised institutes"*.

Many of these studies are made public and available on the Ministry of Defence website. In the case of a study published in part, the Directorate General for International Relations and Strategy can be contacted for more information.

DISCLAIMER: The Directorate General of International Relations and Strategy or the organisation leading the study cannot be held responsible for the statements made in the studies and observatories, nor do they reflect an official position of the Ministry of Defence.

This event took place on 29/03/2023 - from 9am to 12:15pm -

In the lecture room of the French Institute for International and Strategic Affairs

This event was organised by the Defence and Climate Observatory, to initiate a cycle of discussions around certain pillars of the Defence Climate Strategy: knowledge, anticipation and adaptation.

Audience

In person: 41 participants.

This event also resulted in the recording of two video clips with:

- **Huu An PHAM**
- **Nadia MAÏZI**

Programme

8h30-9h00: Coffee reception; opening of the event by **Julia TASSE** and **François GEMENNE**

9.05am: Presentation of the Defence & Climate Strategy by **Nicolas REGAUD**

9.15-10.30: Mapping climate risks at different scales for adaptation, a national security issue?

- **Adrien DELAHAIS**, PhD student in climate change economics, Cired, École des Ponts
Presented the note produced in collaboration with France Stratégie entitled *Cost of inaction on climate change in France: what do we know?*
- **Huu An PHAM**, Head of Industry Adaptation, Axa Climate
Reviewed how Axa Climate assesses climate risks to infrastructure as well as associated adaptation needs. Support measures for the implementation of such adaptation means were also presented.
- **Anne-Marie GOUSSARD**, ADAPT Unit of the Nuclear Generation Division, EDF
Presented the methods, time horizons and approaches of EDF in anticipating the impacts of climate change on energy infrastructures.
- **Nacer LALAM**, Director of Research and Forecasting, Institute of Advanced Studies of the Ministry of the Interior
Explained why and to what extent adaptation to climate change is a national security issue, and the work and projects of the IHEMI on this topic.

11:00 - 12:15: Climate foresight, a strategic tool?

- **Frédéric SCHAFFERER**, Adaptation Officer, ONERC
Presented the conclusions of the ONERC report *Foresight for adaptation to climate change*
- **Marine DE GUGLIELMO WEBER**, Research fellow at the Defence and Climate Observatory
Reviewed the foresight approach developed by the Defence and Climate Observatory
- **Nadia MAÏZI**, Professor at MINES-Paris, Paris Sciences et Lettres, Director of The Transition Institute 1.5 and scientific contributor to the Red Team Defence programme
Presented the articulation between climate science and foresight, as well as her experience

Round Table 1: Mapping climate risks at different scales for adaptation, a national security issue?

Adrien Delahais, PhD student at CIRED, presented the conclusions of the France Stratégie report on the costs of inaction and maladaptation to climate change. He reviewed the methodological issues involved in assessing these costs, and the quantitative and qualitative information available in French institutional literature. Knowledge on these issues has evolved since the ONERC report of 2009, as private actors such as Cerema, Axa, Carbone 4, RTE and insurance companies or European actors have produced updated data. Studies on France and in particular supply chains already exist. This data is very useful and easy to use to support analyses and decisions because of its mainly quantitative nature. However, data is still missing or imprecise when it comes to, for example, equal exposure to heat or inter-regional risks. It is therefore necessary to have this approach of studying the costs of inaction and the regulatory framework at a more local and territorial scale. In addition, researchers identified "no-regrets" measures for France that should be adopted without requesting new data in trigger action.

Huu An Pham, Head of Industry Adaptation at Axa Climate, presented the insurance approach to climate change. One third of Axa Climate's employees are scientists, who work on creating scenarios based on well-established knowledge. Axa Climate also organises training for its employees to raise awareness of vulnerability, exposure and hazard issues. Business support is imperative, and a shift in the private sector's approach to climate change has been observed in recent years. For example, the floods and droughts in 2021 and 2022 have raised public awareness by showing the impacts of climate change in a very concrete way. **Huu An Pham** emphasised that risks must be considered right from the design of objects and the structuring of organisations. Risk assessment must be based on scientific predictions and statistics. **Huu An Pham** stressed that these data and statistics should not be debated.

However, climate anticipation is different from resilience, which according to Axa implies being able to withstand a shock after having learned from the previous one. Indeed, **Huu An Pham** asserted that the magnitude of shocks will only increase and that it is not about resilience. Finally, he recalled that adaptation implies being able to identify vulnerability and to choose the most effective solutions, including nature-based solutions (NBS) because they are less expensive and more effective despite the difficulties of implementation. In response to a question on the role of insurance, **Huu An Pham** replied that some areas are no longer insurable because the consequences of climate change have become so significant (e.g. cessation of activity in some cases) that it is not possible to insure them.

Anne Marie Goussard works in the ADAPT division of EDF's nuclear production directive on "worst case" operating conditions, a subject that has been studied within EDF since 1990. In 2020, a plan for adaptation to climate drifts was created based on a benchmark of armed forces in France and in the world. EDF considers climate a "drift", and not a crisis (associated with a beginning and an end), as climate change is a long run phenomenon, with permanent changes. Thus, there will be an evolution of operating conditions, missions, logistics and equipment as well as technical developments to adapt to degraded conditions.

To carry out the reflection, the ADAPT division uses the CEMA method: understand, evaluate, mobilise, act (*comprendre, évaluer, mobiliser, agir*, in French). In terms of understanding, EDF is thinking about water management, industrial facilities and all contractual and non-contractual relations concerning infrastructures or with institutions. A climate department works particularly on low water levels, changes in sea level and water and air temperatures, as well as on extreme weather events. To do this, it uses the four IPCC scenarios and in particular the most pessimistic, which is very restrictive and worrying. These systematic and evolving problems must be dealt with on a territorial scale to guarantee the habitability of the territories.

The ADAPT division also relies on the benchmarking of nuclear power plant operators in the United States and the United Arab Emirates. The scope of their work goes beyond climate change alone and looks at biodiversity and the energy dimension in national security in a more global way. It is also looking at no-regret investments, the

"small but effective steps" that allow for rapid, cost-effective and long-term adaptation. This work is also done in collaboration with other actors to share data and experiences.

Nacer Lalam is Director of Research and Foresight at the Institute for Advanced Studies of the Ministry of the Interior. He notes a paradoxical situation in which the ministry has developed its capacity to react to climate change while neglecting that of anticipation. However, the prefectural corps must know how to anticipate, particularly regarding water and fire management. The Ministry of the Interior encounters several difficulties in its adaptation process, among which capacity breakdowns, which can last longer or shorter, and strategic surprise. For example, the surprise can consist of fires starting in areas that had been preserved until then, which raises issues of reactivity related to means and places. **Nacer Lalam** therefore emphasised the need, on an operational level, to work in symbiosis between national and local resources and, on a theoretical level, to develop foresighting work on the consequences of climate change on missions. The latter includes the fight against fraudulent behaviour. These are indeed developing around ecological transition tools, such as carbon quotas. **Nacer Lalam** also recommended whole-of-government approach on strategic foresight and anticipation. This anticipation must be inter-ministerial since it concerns infrastructures, means, services and tools. The Ministry of the Interior could be the driving force since its finance department oversees sustainable development and mitigation policies.

This was followed by a time for questions from the audience and answers from the speakers. The questions focused on the risk culture in France, the role of insurance, the law, the French network and decision-making scales, and the notion of resilience.

Round table 2: Climate foresight, a strategic tool?

Frédéric Schafferer is adaptation officer at ONERC. He presented the conclusions of ONERC's report, *La prospective au service de l'adaptation au changement climatique (Foresight for adaptation to climate change)*. He began by stating that the need to adapt leads naturally to foresight because both adaptation and foresight are based on long-term thinking. Foresight allows us to prepare for one-off crises as well as for long-term changes by identifying risks composed of hazards, exposure and vulnerability. It is essential to take into account the strength, geographical extent and frequency of impacts. These impacts can be multiple and may include over-stretching of staff or difficulties in mobility in the event of an extension of the geographical area to be covered. Moreover, the consequences of climate change vary from one locality to another. Foresight analysis must therefore be carried out on a local scale. **Frédéric Schafferer** then identified several points of attention relating to foresight: taking into account the internal relations of the structure analysed, its relations with external actors and, in particular, the differences in temporality and impact of the actors. He also stressed that foresight is an iterative process that needs to be updated regularly. Finally, **Frédéric Schafferer** presented several foresight methods (mobilisation, change management, decision support, strategic orientation) and adaptation trajectories. In this respect, he prefers approaches that are not based on scenarios but on thresholds and indicators that trigger specific actions. This method makes it possible to determine the point at which action should be taken.

Marine De Guglielmo is a researcher at the Defence and Climate Observatory. She presented the Observatory's foresight approach, oriented towards the production of narratives that allow the reader to build strategic thinking, to apprehend complex climatic information in a narrative way, and to become effectively aware of risks. Firstly, the approach consists of translating the geostrategic landscape into fifteen or so variables, in order to reduce the complexity of a security situation to a limited set of structuring elements. In a second step, these variables are classified into three categories according to whether they are major trends, emerging trends or breakthrough variables. In the third stage, the identification of pivotal variables, i.e. the most structuring variables for the situation studied, and the breakdown of their various possible evolutions will serve as a basis for the construction of scenarios. These scenarios are, at the same time, expanded and adjusted according to the results of related research. The aim of this work is to produce, within the framework of the Observatory's prospective and strategic

reflection notes, three scenarios for the year 2050, graduated according to their level of criticality for the security situation and the armed forces. These scenarios also give rise to operational lessons for the armed forces.

In response to a question from the audience on the ability of researchers to free themselves from past trends when imagining their scenarios, **Marine De Guglielmo** replied that particular attention is paid to breakthrough variables. As the Observatory's work is primarily aimed at defence and security, current trends must not hinder the apprehension of less likely, but nevertheless critical, developments.

Nadia Maïzi is a scientist, director of The Transition Institute 1.5 and member of the RED TEAM project. She argues that foresight must allow us to look ahead, in order to make decisions about building the future, an approach that is all the more essential in the context of climate change, because it is a business issue and a matter of rivalry between regional powers. Foresight differs from forecasting and retrospection in that it constructs trajectories based on specific and questionable hypotheses, which cannot be used as absolute references. **Nadia Maïzi** specifies that foresight produces 'flow scenarios' rather than 'stock scenarios' because they are subject to permanent modification. Finally, **Nadia Maïzi** underlined the importance of weak signals, but above all the importance of taking them into account in political decisions once they are spotted. She also pointed out that foresight must be accompanied by freedom in the establishment of variables and scenarios, and that constraining foresight, by ruling out certain possibilities of evolution from the outset, will not allow informed decisions to be taken.

In response to a question from the audience on the state of synergies between information and data exchange platforms, **Nadia Maïzi** recalled that many organisations still operate in silos. However, the activities of institutions such as the IPCC, which report on their work, are gradually encouraging synergies.

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