Network Nature – written by Laure-Lou Tremblay ltremblay@ieep.eu
(10/2025)

Good Practice in Policy Integration of Nature-Based Solutions:
Integrating nature-based solutions into climate adaptation planning in France

Short description

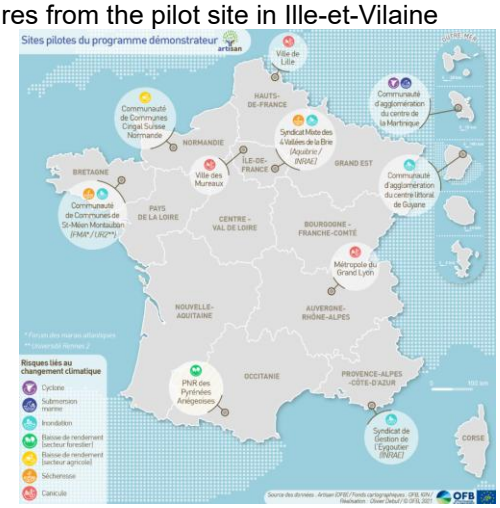
Integrating nature-based solutions into climate adaptation planning under France's third National Climate Change Adaptation Plan
LIFE ARTISAN project and focus on the pilot site: Wetland restoration in Brittany (2020-2027)

Key Messages

- France's third National Climate Change Adaptation Plan explicitly prioritises nature-based solutions to deliver climate adaptation and calls for greater support to local authorities to implement NbS.
- The LIFE ARTISAN project in France stands out as a best practice example of how NbS can be meaningfully integrated into climate adaptation policy and is a flagship initiative of the national plan.
- The project has built capacity for NbS implementation at national, regional and local scales. Nationally, it has developed an array of policy resources and engaged with national policy makers. Regionally, it has set up regional networks for NbS and adaptation gathering biodiversity and climate actors. Locally, it is demonstrating the positive impacts of NbS in ten pilot sites.

Images

Before-after pictures from the pilot site in Ille-et-Vilaine



10 pilot sites across France (source: OFB)

regional facilitation

Description of policy

Network Nature – written by Laure-Lou Tremblay ltremblay@ieep.eu
(10/2025)

France's **third National Climate Change Adaptation Plan (PNACC-3)** [1] was launched by the French government in March 2025. It is designed to prepare the country for projected warming scenarios, +2 °C by 2030, +2.7 °C by 2050, and up to +4 °C by 2100.

The plan explicitly emphasizes the prioritization of Nature-based Solutions (NbS), highlighting their potential to deliver multiple co-benefits alongside climate adaptation. Among the 52 measures outlined in the plan, 20 measures integrate the NbS concept. Measure 20 is specifically dedicated to the deployment of NbS. NbS are integrated into measures related to protecting the population from heat waves, floods, coastal erosion, and the need for urban rewilding. NbS are also relatively well integrated into adaptation measures for the agricultural, agri-food, and fishing sectors, as well as the timber industry, and into adaptation measures for urban environments (housing, urban development).

The national adaptation plan must be translated into regional and local plans as follows:

- At **regional level,** regional plans for land use, sustainable development and equality (SRADDET) [2], or SARs for the French overseas territories and Water Development and Management Master Plans (SDAGEs) define the major objectives for adapting the regional territory.
- At **local level**, intermunicipalities (EPCI) with more than 20,000 inhabitants have been required to adopt a Territorial Climate-Air-Energy Plan (PCAET) since 2018. As part of this obligation, they must conduct a vulnerability assessment of their territory to the impacts of climate change. The PCAET action plan must include a dedicated adaptation component.

French urban planning law states that public planning efforts must aim to both fight climate change and adapt to its impacts. Local Urban Plans (PLU) play a key role in adapting to climate change, as they connect long-term territorial planning with on-the-ground development decisions. PLUs, or the inter-municipal versions (PLUi), must align with the objectives of the local Climate-Air-Energy Plans (PCAET).

Description of project

The EU LIFE funded **LIFE Artisan project** - Increasing the Resilience of Territories to Climate Change by Encouraging Nature-based Adaptation Solutions – is being implemented over 8 years (2020-2027) [4]. The project aims to demonstrate how NbS can address both ecological and human needs. Ultimately, the project seeks to create the structural and social conditions necessary for the full-scale deployment of NbS.

LIFE ARTISAN is recognised as a flagship initiative under the National Climate Change Adaptation Plan (PNACC-3) Measure 20. Most of the actions within this measure aim to sustain and build upon the efforts initiated by the LIFE ARTISAN project[1]: to raise public awareness of NbS, directly continuing LIFE ARTISAN's outreach activities, to keep animating regional network on NbS beyond ARTISAN project, or to train a large range of actors : elected officials, local authorities' services, and all the actors supporting local authorities.

The LIFE Artisan project strategy is based on a three-fold approach (at local, regional and national scale):

- a programme of ten pilot sites [5] across France, responding to local challenges, in full coordination with local stakeholders
- a regional network of facilitators [6], with one expert in each region responsible for setting up a regional stakeholder consultation group, including key actors in the deployment of NbS (regional climate and biodiversity agencies, elected officials, regional administrations, etc).
- a national network producing reports and guidance documents [8] to support the deployment of NbS and actively engages with national policy makers on the integration of NbS in strategic documents. The national network organises regular editions of the "LIFE ARTISAN awards" [7].
-

Focus on a pilot site: In Brittany (Ille-et-Vilaine), one of the ten pilot sites across France, this has meant restoring ecological continuity within the catchment area, re-establishing habitats for wetland species, and addressing the spread of invasive alien species. Developed in response to growing conflicts over water use, particularly the pressure on local groundwater resources during periods of drought, the pilot also aims at improving soil moisture levels and enhancing groundwater recharge, with the goal of securing a high-quality drinking water supply for the city of Rennes [9]. Beyond ecological restoration, the project invests heavily in building regional capacity and governance tools that will support the implementation of future NbS initiatives in the region.

[1] Although funding is earmarked for these measures, interviews have shown that the budget lines were already allocated and do not constitute additional funding.

Network Nature – written by Laure-Lou Tremblay ltremblay@ieep.eu
(10/2025)

Type of Policy Instrument	Location and scale
National strategy integrated with regional and local strategies Information /education instrument	National – Life artisan coordination team (technical support and advocacy) Regional – regional facilitators networks Local - ten pilot sites distributed across French Metropolitan territory and overseas territories, working on different societal challenges. Including: Neal River catchment basin area, Ille-et-Vilaine (Brittany, France). The pilot site in Brittany covers 8000 m^2 of wetland area.

Network Nature Themes

- Climate adaptation mitigation and resilience
- Biodiversity and ecosystem restoration

Policy Good Practice Criteria

NbS Mainstreamed in Policy Text (Legal or Strategic) and/or NbS as a Central Component of Policy Response	NbS is explicitly mainstreamed in the national climate adaptation strategy approved in 2025 and is now being integrated slowly into regional and local plans that fall under the national strategy. However, there has not yet been enough time for this to happen in most places [9]. A 2023 study [10] from the Life Artisan project assessed the integration of NbS in 42 policy documents (including 16 at national scale and 26 at local and regional scale). The study found that national integrating well NbS were not legally constraining, and that local/regional documents also failed to integrate cross cutting objectives (like biodiversity and climate) in binding documents. The report also notes the challenges in relation to the articulation between regional planning documents, due to their density across sectors. For example, in Brittany, the regional land use plan (SRADDET) [11], updated in 2024, lacks explicit reference to NbS. In particular, the only objective on climate adaptation (n.22) does not mention NbS, apart from the objective to restore ecological continuity. LIFE Artisan is building capacity at all governance levels to implement NbS as a central climate adaptation response. However, there is not yet much evidence that NbS options have been prioritised over non-NbS approaches outside of the LIFE funded actions (see evaluation below).
Societal Challenge(s) Addressed and Human Wellbeing Outcomes Identified	The climate adaptation strategy profiles NbS as the priority to address multiple climate adaptation challenges across the French territory: flood risk, water scarcity, urban heat island effect, coastal erosion, etc. [12] Nbs brings also multiple benefits: - Physical and mental health, Enabling social interactions - Social benefits: Hospitality and attractivity for tourists and locals - Reinforcing landscape identity In Brittany, the pilot focuses on the most urgent impacts of climate change: impacts of drought on drinking water supply, flood risks, environmental degradation and biodiversity loss.
Dedicated Budget/Funding Stream	The national climate adaptation strategy has no dedicated funding. The LIFE project has secured EU plus national co-funding for the 8 years of the project (EUR 16.7 million including EUR 10 million from EU LIFE). For example, the Brittany pilot has funding from LIFE (60%), Ille et Vilaine Department (20%), Atlantic Marshes Forum (National network for extensive livestock breeding on wetlands) (20%). The project is exploring additional sources of funding to allow the continuation of activities (the regional networks of facilitators) after the LIFE grant ends.
Indicators of Impact and Evaluation Framework	At pilot scale, ecological parameters are being monitored on the pilot sites based on evaluation methodologies (such as methodologies for wet ecosystems in Brittany) [13] developed within the project. The methodology involves baseline evaluation, indicators monitoring ecosystem functions, specific composition, structural diversity, etc. At national level, as of June 2025, a review phase is underway, with 4–5 separate evaluations covering: - Economic (to be carried out in 2026-2027) ;

	- Socio-cultural (to be carried in 2026) - governance (study published in 2024) [14] - Technical and scientific Every pilot site are monitorin different indicators, all coming from a “referentiel de suivi-évaluation” [14 bis] made by ARTSAN’s partners and availaing online : In parallel to evaluating the impact of the project, studies have been carried out at national level on multiple aspects of NbS implementation and uptake: Study on barriers and opportunities for stakeholder engagement on NbS (2021) [15] , study on the integration of NbS in PCAETs (2022) [16] and SDAGEs (2023) [17], study on the market of NbS (2022) [18], study on available knowledge on NbS (2022) [19], study on NbS funding (2023) [20]. Regional and local studies have also been produced by partners of the project (see the Life Artisan Resources catalogue)[8]
Inclusivity and Stakeholder Engagement	Stakeholder engagement is a core objective of the Life Artisan project, and a leading action is the creation of a regional network of facilitators focusing on increasing coordination between local actors, building capacity, and making the link between local and national level (spreading awareness about available resources, national policies, needs identified at local scale, etc).
Consistency within Policy Mix	The project objectives are coherent with the national frameworks for climate and biodiversity (National Biodiversity Strategy for 2030 [21], National Strategy for climate change adaptation) [1]. The national team of the project ensures coherence within the national and regional policy mix, with direct engagement with policy makers and the development of dedicated policy studies (see “indicators of impact and evaluation framework).
Knowledge Development and Transmission	The national pillar of the project focuses on creating 100+ resources to support the implementation of NbS at regional level (fiches, guidance documents, evaluations, reports, etc), including a user friendly Interactive tool [22] for adapting our territories to climate change with Nature-based Solutions. The project is developing capacity building with workshops (organised by regional facilitators), dedicated training for regional and local authorities (to be fully deployed in 2026), training dedicated to universities (6 training modules available), regional sessions for private and local decision makers (2 per year in each region), and the upcoming development of a MOOC in 2026 (for a general audience). The project is contributing to awareness raising on climate change and biodiversity during the initial consultation phase and regional network of 14 facilitators dedicated to coordination with local policy makers and practitioners.

Success Factors/Uptake/Impact

- Multi-scale project with impacts at national, regional, and local scales. The national LIFE ARTISAN networkis facilitating a community of dialogue between decision-maker, practitioners scientists. The network has been for example working on funding issues with CDC biodiversity and capacity building with training provision with the National Centre for the Local Civil Service.
- Regional scale: Development of stakeholder engagement tools tailored with regional specific issues and actors at stake, in order to ease future NbS project implementation. Development of a regional network animated by 14 coordinators.
- Local scale: Implementation of NbS pilots to demonstrate positive impact of NbS, with the capacity to monitor a broad range of data and indicators that will be valued to other potential NbS project leaders. Ex) in Brittany, the project allowed restoration of ecological continuity and habitats for wetland species in the catchment basin: Wetland restoration, re-meandering of watercourses, planting of hedgerows, management of invasive alien species to protect native biodiversity.
- Multi actor governance is including all affected stakeholders: the pilot project in Brittany is coordinated by the French Office for Biodiversity, the Forum des Marais Atlantiques, University Rennes 2, Local administration of St Meen Montauban. Besides, consultation with local officials and inhabitants was carried out before the restoration activities’ implementation to increase acceptance.

- Awareness raising activities are organised with elected officials and local inhabitants on climate change impacts and value of NbS.
- Creation of targeted resources (100+ resources available on the website) among which a flagship ressources, a interactive tool [22], to support stakeholders in implementing Nature-based Solutions for climate change adaptation.
  It consists of two key resources:
  - A special publication aimed at decision-makers, exploring the benefits of Nature-based Solutions, how they work and showcasing concrete examples already implemented in mainland France and overseas territories;
  - A toolkit for technical teams, bringing together the technical resources and essential tools needed to take action.

- By supporting local project leaders and aiming to embed NbS into territorial planning processes, LIFE ARTISAN helps ensure that its impact will last well beyond the life of the project itself, creating a replicable model for policy-driven NbS integration.

Barriers and Challenges

Lack of legally binding requirements: The national climate adaptation strategy has no legal power, and its measures are not directly linked to a national law [24]. The effectiveness of PNACC 3 measures depends largely on the rapid publication of decrees, orders and instructions, and these do not yet exist.

Insufficient dedicated funding: A recent evaluation [24] of the PNACC-3 from the French High Council for Climate (HCC) highlighted that most measures highlighted in the adaptation strategy were not accompanied by dedicated funding and when detailed, insufficient. To guaranty effective implementation, the plan would require the publication of a detailed multi-year financing plan for the measures adopted. In addition, the HCC noted that several adaptation measures depend on the French Green Fund, which was **recently reduced by €1.35 billion**, from €2.5 billion in 2024 to €1.15 billion in 2025. Ultimately, the lack of funding support for adaptation might hinder the deployment of NbS at regional and local level.

The Life Artisan project has faced several institutional barriers [9bis]:

- Land access and actor coordination: Many challenges are related to land access and coordination among stakeholders. In areas with fragmented private land ownership, land becomes more complicated than land with public ownership.
- Costs: Construction work NbS is often cheaper than civil engineering solutions, but ecological projects have higher maintenance costs. In addition, preparatory studies (including ecological assessments) represent a non negligeable cost in NbS projects. In France, maintenance costs are poorly integrated into budgets, including for natural areas. Projects also need to be adaptable overtime, but municipalities rarely account for this. The accounting aspects of NbS projects is different than civil engineering solutions, which creates barriers for local administrations and favours business as usual.
- Training and competences: the maintenance of natural areas and specially newly restored areas require knowledge about local species, differentiated management of green spaces. The lack of competencies from work compagnies or maintenance staff can lead to damage recent plantations and restoration work.
- Resistance from residents: Local opposition may arise due to attachment to existing landscapes. Projects must always consider how the land is used. For example, restoring a stream might involve removing an artificial pond, which can cause conflict. Changes in land use need to be supported. Landscape and territorial identity play a big role. Local elected officials can either support or hinder projects — experiences vary.
- Cognitive biases: In coastal restoration projects (e.g., removing rocks, restoring coastal zones), people's perceptions may be biased, the way they feel about changes doesn't always reflect reality.
- Data expectations: There is a greater demand for environmental data for NbS projects, compared to traditional civil engineering projects.

Potential for Replication/ Upscaling

The LIFE ARTISAN project invested significant resources in supporting regional and local policymakers and stakeholders in the implementation of NbS. It established a network of 14 regional facilitators to provide guidance and hands-on support and developed 10 pilot or demonstration sites to showcase the practical value and effectiveness of NbS on the ground.

The interview conducted and the review of LIFE ARTISAN impact studies indicate that the concept of NbS has become increasingly familiar at the local and regional levels, with a marked increase in uptake across France over the past 4–5 years. There is strong potential to further embed NbS into regional planning frameworks, and to enhance coherence across sectoral planning documents, thereby strengthening the strategic integration of NbS into territorial development and climate adaptation efforts.

More Information & Sources

[1] Ministère de l'Aménagement du Territoire et de l Décentralisation & Ministère de la Transition Écologique, de la Biodiversité, de la Forêt, de la Mer et de la Pêche (2025) Le gouvernement lance un nouveau plan national d'adaptation au changement climatique. 10 mars 2025. https://www.ecologie.gouv.fr/actualites/gouvernement-lance-nouveau-plan-national-dadaptation-changement-climatique
[2] Schéma régional d'aménagement, de développement durable et d'égalité des territoires (SRADDET)
[3] Schéma régional du climat, de l'air et de l'énergie (SRCAE)
[4] OFB, The ARTISAN integrated Life project (Information on the challenges that the pilot sites address). 2025. https://www.ofb.gouv.fr/le-projet-life-integre-artisan.
[5] Pilot sites of the Life Artisan project https://www.ofb.gouv.fr/sites/default/files/Images/Cartes/sites-pilotes-life-artisan.png
[6] Regional network of LIFE ARTISAN facilitators (infographic) https://www.ofb.gouv.fr/sites/default/files/Fichiers/Ressources/animateurs-regionaux-artisan.pdf
[7] Life Artisan awards https://www.trophees-adaptation-life-artisan.com/
[8] Life Artisan Resources, Projet Life ARTISAN https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan?page=2
[9] Antoine Le Roux, Agence Bretonne de la Biodiversité (ABB), Simon Dufour– Université Rennes 2; Projet Life ARTISAN : Accompagner la mise en œuvre de SafN / Site pilote du Néal (35), 11 April 2023. https://www.creseb.fr/projet-life-artisan-accompagner-la-mise-en-oeuvre-de-safn-site-pilote-du-neal-35/
[9 bis] Interview with Life Artisan national coordinator Amaury Parelle (OFB) – June 2025.
[10] Office français de la biodiversité (OFB), 2023. Study on the cross-integration of climate change adaptation and biodiversity protection issues in French public policy, https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/etude-de-lintegration-croisee-des-enjeux
[11] Région Bretagne, Schéma régional d'aménagement, de développement durable et d'égalité des territoires de Bretagne (SRADDET), 2024. https://www.bretagne.bzh/app/uploads/SRADDET-2024.pdf
[12] HCC evaluation of PNACC-3 (March 2025) https://www.hautconseilclimat.fr/wp-content/uploads/2025/03/2025_HCC_auto_saisine_avis_PNACC3_VF.pdf
[13] Dausse A., 2024 - Evaluating a wetland restoration project. Technical notebook of the network on wetland restoration in Brittany. Loire-Bretagne Water Agency / Brittany Region / DREAL Brittany. Atlantic Marshes Forum, Brest. 24 p. https://rerzh.forum-zones-humides.org/wp-content/uploads/sites/2/2024/11/FMA_RERZH_Carnet_2024_Evaluer_Operation_Web_vf.pdf
[14] Walczyszyn, S., Vanderlinden, J. 2024. Nature-based solutions and governance "C2B Cross-cutting Study on the ARTISAN Demonstration Program". https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/solutions-fondees-sur-la-nature-et
[14 bis] Office français de la biodiversité (OFB), 2022. Suivi de projets de solutions d'adaptations. Référentiel d'indicateurs fondé sur les 10 sites pilotes du programme démonstrateur du projet LIFE intégré ARTISAN. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/suivi-de-projets-de-solutions-dadaptation
[15] Office français de la biodiversité (OFB), 2022, Study on the obstacles and drivers for implementing Nature-Based Solutions among communities and residents: 2021 survey. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/etude-sur-les-obstacles-et-leviers-la-0
[16] Salmon, B., Da Cunha, C. ADEME. 2021. Adapting to climate change in PCAETs - Integrated Life ARTISAN. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/ladaptation-au-changement-climatique-dans
[17] Office français de la biodiversité (OFB). 2023. Status report on the mobilization of NbS in SDAGEs. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/etat-des-lieux-de-la-mobilisation-des
[18] Office français de la biodiversité (OFB), ADEME. 2022. Study of Nature-Based Adaptation Solutions (SafN) offerings: emerging economic sectors. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/etude-de-loffre-de-solutions-dadaptation
[19] Ecole Nationale des Ponts et Chaussées (ENPC). 2022. Inventory of current knowledge and research needs on NbS. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/inventaire-des-connaissances-actuelles-et

[20] Eclimont, B., Bourcet C. CDC biodiversite (2023), financing available for nature-based adaptation solutions. dossier no. 48. https://www.ofb.gouv.fr/le-projet-life-integre-artisan/documentation-life-artisan/etude-sur-les-financements-quels-leviers
[21] Ministère de l'Aménagement du Territoire et de l Décentralisation & Ministère de la Transition Écologique, de la Biodiversité, de la Forêt, de la Mer et de la Pêche. 2017. National Biodiversity Strategy. https://www.ecologie.gouv.fr/politiques-publiques/strategie-nationale-biodiversite-2030
[22] Life Artisan NbS toolbox, Projet Life ARTISAN, 2025. https://fr.zone-secure.net/170194/2089162/#page=6
[23] Office français de la biodiversité (OFB). 2025. Brochure for elected officials on NbS. https://fr.zone-secure.net/170194/2134133.pdf
[24] High Council for Climate (HCC). 2025. Opinion on the national climate change adaptation plan (pnacc3): a first step towards ensuring resilience and protection for populations. https://www.hautconseilclimat.fr/wp-content/uploads/2025/03/2025_HCC_auto_saisine_avis_PNACC3_VF.pdf

Contact

Coordinator, Amaury Parelle: amaury.parelle@ofb.gouv.fr
Technical expert, Natalia Ramirez-Rodriguez: natalia.ramirez-rodriguez@ofb.gouv.fr