

# ORGANISING A PERMANENT RETREAT STRATEGY

## HAZARD



COASTAL  
DYNAMICS

## IMPLEMENTATION STEP



TERRITORY

## AREA OF ACTION



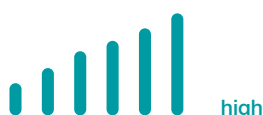
OUTDOORS

## COST



low medium high

## LEVEL OF SKILL



Retreat solutions involve putting in place alternative measures to transfer activities, goods and/or users to different locations, free from the same risks. There are two possible approaches. The first provides temporary relocation of users in the event of disasters linked to climate change, such as intense heat, flooding, forest fires and storms. The second approach, known as a permanent retreat strategy, involves relocating activities and assets as part of territorial planning to protect them from the risks associated with coastal dynamics.

The main strategies for adapting to climate change in coastal areas include withdrawal (demarcation of non-buildable areas or planning for relocation), protection (erection of dykes, use of artificial blocks, etc.) and adjustment (raising structural elements). However, when adapting to the risks associated with sea-level rise, protection and adjustment strategies are considered to contribute less to successful adaptation ([IPCC, 2022](#)).

## IMPACTS

Rising sea levels represent a considerable adaptation challenge for the coming decades with an expected increase in the frequency and scale of extreme events such as coastal flooding and gradual changes such as coastal erosion. The main risk factor for buildings will be their location, with repairs becoming complex, if not impossible, and costly. Climate change will progressively jeopardise livelihoods, safety and general habitability, particularly in coastal areas and on small islands, making population displacement inevitable, either autonomously or as part of planned relocations. It is imperative to anticipate and plan the relocation of people at risk, particularly individuals unable to move on their own due to socio-economic constraints, health issues and other factors.

## INSTALLATION GUIDE

The French National Strategy for Integrated Coastline Management (*SNG/ITC*) introduces the concept of relocating activities and assets, which involves moving them a sufficient distance away from the coast in order to protect them from the risks they may face from the sea, in the short or long term (French Ministry for Ecology, Sustainable Development and Energy, 2012). Permanent retreat to higher ground can also be an appropriate solution.

The actions to be taken to assess the effectiveness of the retreat should focus mainly on:

- **Knowing the characteristics of the area** (geomorphology of coasts and foreshore, orientation in relation to prevailing winds and currents, hydrographic networks, etc.).
- **Assessing the level of awareness** among the local population or occupants of buildings at risk, and **understanding their needs, concerns and aspirations** (surveys, interviews, community forums, awareness campaigns, information sessions, public consultations/concertation, etc.).



- **Examining specific concerns, socio-economic situations and individual requirements.**

- **Identifying the knowledge, skills and resources needed** to implement effective adaptation strategies (strengthening local skills, working with experts, mobilising technical and financial resources, etc.).

The design of the permanent retreat strategy must incorporate as much of the information gathered as possible to ensure

consistency and promote acceptance by the local population. To ensure effective relocation, it's essential to plan well in advance, while clearly communicating the risks to the occupants. This planning needs to be accompanied by ongoing inclusive community engagement and should be part of an integrated coastline management approach. Planned relocations, with extended implementation timeframes, will need to be applied over the next decade to mitigate risks in time.

### WEAK POINTS AND STRONG POINTS

- ⊖ Due to its duration and high cost, a permanent retreat strategy cannot be established rapidly and needs to be temporarily replaced by other solutions during its implementation period.
- ⊖ Local relocation can present considerable challenges when vacant space is scarce.
- ⊕ Local authorities have a choice between introducing or revising the Coastal Risk Prevention Plan (PPRL), revising urban development plans such as Local Urban Plans (PLU) or Territorial Coherence Schemes (SCoT), and initiating a transitional strategy for managing the coastline while awaiting decisions.

### ! MALADAPTATION

Maladaptation can result from the following:

#### **Climate uncertainties not taken into account**

In view of the anticipated increase and intensification of climatic events, as projected by the IPCC, it is imperative that the strategy for relocating away from the coast and/or to higher ground takes full account of climate projections. In addition, it is crucial that these relocations limit the exposure of people and property to other climate hazards.

#### **Urban sprawl**

The planned relocation of populations away from the coast leads involves creating new infrastructures, which amplifies urban expansion. This increasing urbanisation puts greater pressure on local natural resources, leading to changes in land use and encouraging urban sprawl. These transformations can lead to the fragmentation of natural ecosystems, affecting ecological connectivity and biodiversity, potentially impacting the health of ecosystems and natural habitats.

# MONITORING INDICATORS



## ESSENTIAL RECOMMENDATIONS WORTH THINKING ABOUT



### IDENTIFY THE CLIMATE HAZARDS TO WHICH THE BUILDING IS EXPOSED



## MONITOR MY ACTIONS FOR CLIMATE CHANGE ADAPTATION

+/- : Quantitative indicator ★ : Qualitative indicator

INDICATORS OF MEANS		INTERPRETATION
+/-	Annual change in coastline (m/year)	A negative shift in the coastline shows the loss of land area.
+/-	Distance between building and coastline (m)	A short distance between the building and the coastline indicates greater proximity to the sea, increasing exposure to coastal dynamics.
+/-	Number of inhabitants below the 100-year sea level	To be minimised
+/-	Number of critical infrastructures (hospitals, schools and emergency centres) below the 100-year sea level	To be minimised
+/-	Percentage of coastal heritage threatened by coastal dynamics (%)	To be minimised
+/-	Number of people living/working in buildings threatened by coastal dynamics	To be minimised
+/-	Comparison of the percentage of people whose activity will be maintained before and after the implementation of a permanent retreat strategy compared with a control situation*.	The permanent retreat site must maximise the percentage of people able to maintain their activity.
INDICATORS OF RESULTS		INTERPRETATION
+/-	Comparison between the annual number of interruptions of activity resulting from coastal dynamics before and after the implementation of a permanent retreat strategy	Minimise the number of interruptions of activity as far as possible
+/-	Comparison between the financial, material and human repercussions and those of a control situation*	Minimise the financial, material and human repercussions
+/-	Comparison of the time required to get activities back to normal compared with a control situation* (hours)	Minimise as far as possible the time needed for activities to return to normal
+/-	Percentage of building users satisfied with the implementation of the permanent retreat strategy (%)	This percentage should be maximised

\*The control situation is defined by the parameters set to isolate the influence of the adaptive action (similar conditions: weather, time of measurement, space, etc.).



## RÉGLEMENTATION

- The French [Climate and Resilience Act](#) aims to strengthen the adaptation of coastal areas. For a list of municipalities at risk, it maps out 30-year and 100-year risk zones. Building permits will no longer be issued in these areas, or only temporary building permits. The law makes it compulsory to take buildings down when there is a risk of coastline retreat.
- The main aim of the French [National Strategy for Integrated Coastline Management \(SNGITC\)](#), adopted in 2012, is to strengthen the resilience of coastal areas by regulating long-term occupation of the shoreline in exposed areas, highlighting the essential role of natural coastal environments in mitigating the effects of natural phenomena (coastal flooding, erosion, floods, etc.).
- [Coastal risk prevention plans \(PPRL\)](#) provide a framework for urban development in coastal areas at risk of rapid flooding and define regulations for the French coastline. These plans are unusual in that they take into account risks that do not currently exist, but that are predicted to occur by 2100 as a result of rising sea levels. The PPRLs are divided into two main parts, one centred on the current reference hazard and the other on the reference hazard in 2100, based on a minimum 60 cm rise in sea level.
- The French [Territorial Coherence Plans \(SCoT\)](#) take account the risk of coastal flooding (art L121-1 of the French Land Planning Code) and regulate building permits for sensitive coastal areas. They also provide a framework for the relocation of activities and structures currently in areas destined to disappear. As well as the coastline, the plan covers land located behind or inside coastal zones.

### FIND OUT MORE

Aziz, M. (2013), [Défense, repli et engagement : restaurer les fronts de mer dans le monde](#)

OECD (2019), [OECD Countries' Approaches to Coastal Risks. Chapter 7: "Retreat" strategy in North Norfolk, UK](#)

OID (2020), [Fiche aléa – Submersions marines](#)

OID (2021), [Fich'ID – Vulnérabilités littorales](#)

Rocle, N. (2017), [L'adaptation des littoraux au changement climatique : une gouvernance performative par expérimentations et stratégies d'action publique](#)

IPCC (2022), [Summary for Policymakers - Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change](#)



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