MANABAS COAST | Interreg North Sea

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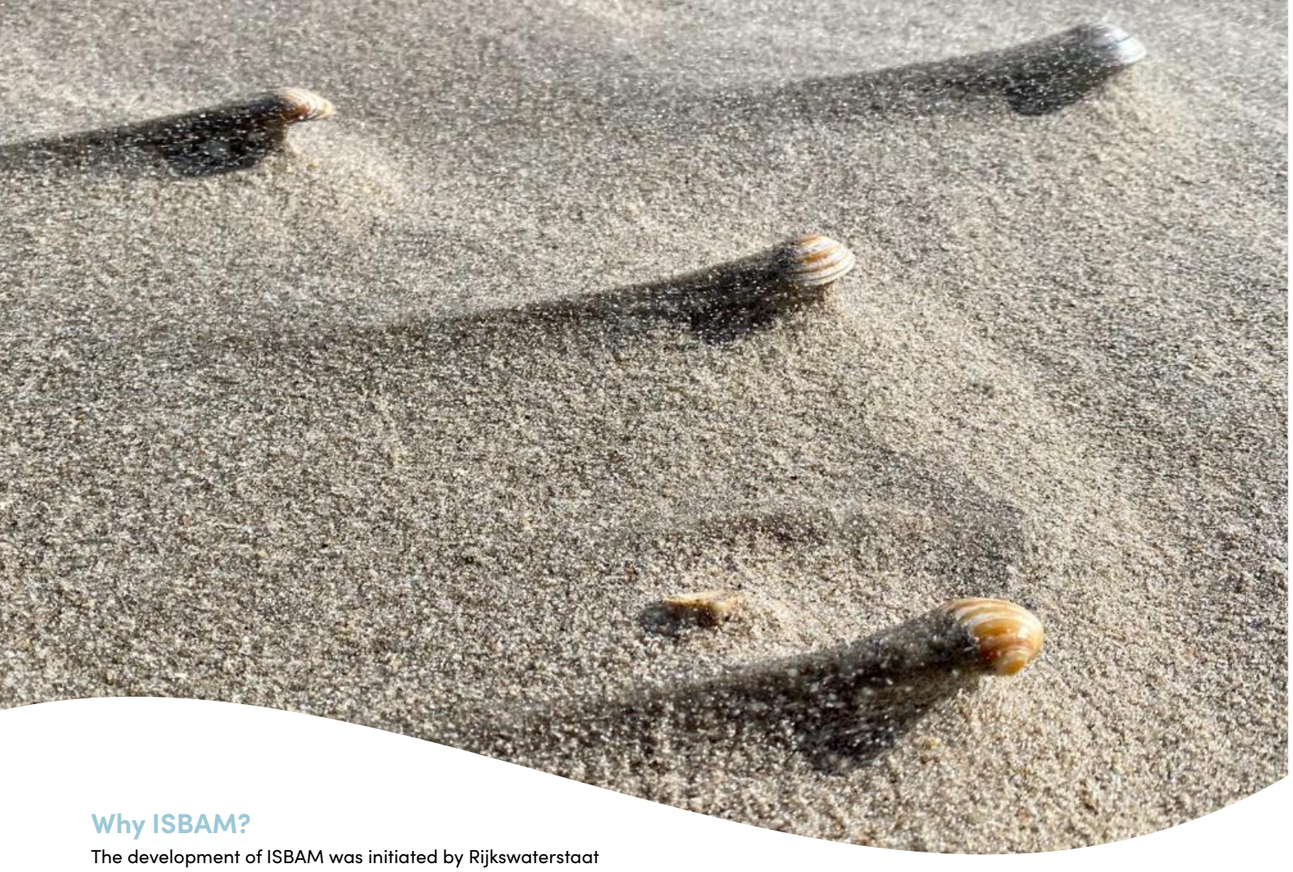
Integrated System-based Asset Management (ISBAM)

A short introduction and reflection on its relevance as an approach for mainstreaming Nature-based Solutions within the Interreg MANABAS COAST project

MANABAS COAST
NATURE-BASED SOLUTIONS

Cover: Zandmotor, off the coast between Hoek van Holland and Scheveningen
Photographer: Martijn Beekman

Nature-based Solutions (NbS) are considered a promising approach to developing sustainable infrastructure and addressing societal challenges such as climate change and biodiversity loss.
These complex challenges require a more holistic approach than is currently applied, resulting in long-term sustainable solutions rather than quick short-term fixes. Much work has already been undertaken on this topic, but there is still much to learn about the most effective ways to implement, scale up, and integrate Nature-based Solutions systematically. Recently, a conceptual framework has been developed to promote a more holistic approach known as Integrated System-Based Asset Management, or ISBAM for short. ISBAM is an approach for integrated and sustainable management of water assets and a means to mainstream nature-based solutions through several guiding principles. The goal of ISBAM is to transition from a 'lowest-cost' to a 'highest-value' landscape, where a balance is sought between the long-term requirements of individual assets and the surrounding natural and social systems. ISBAM has the potential to accelerate the integration of NbS into mainstream practices but is still work in progress. This leaflet aims to provide more information about the transformative ISBAM approach, explain its contributions to mainstreaming NbS, and highlight the next steps in its development within the Interreg MANABAS COAST project.



Why ISBAM?

The development of ISBAM was initiated by Rijkswaterstaat and EcoShape during the previous Interreg Building with Nature project, with the aim of further promoting the main-streaming of Nature-based Solutions. During the development process, it became evident that NbS should not be pursued as an isolated objective, but rather the combination of multiple system objectives should serve as the starting point for any management approach. This realization led to the formulation of several guiding principles.

The systems perspective, exemplified by ISBAM, can result in a grey or hybrid solution, depending on the needs and objectives of the systems involved. However, when considering multiple system-wide objectives, NbS often emerges as the most suitable solution. For both ISBAM and NbS, it is crucial to consider the long-term effects of assets on various functions within a water system and the benefits they provide, both presently and in the future.

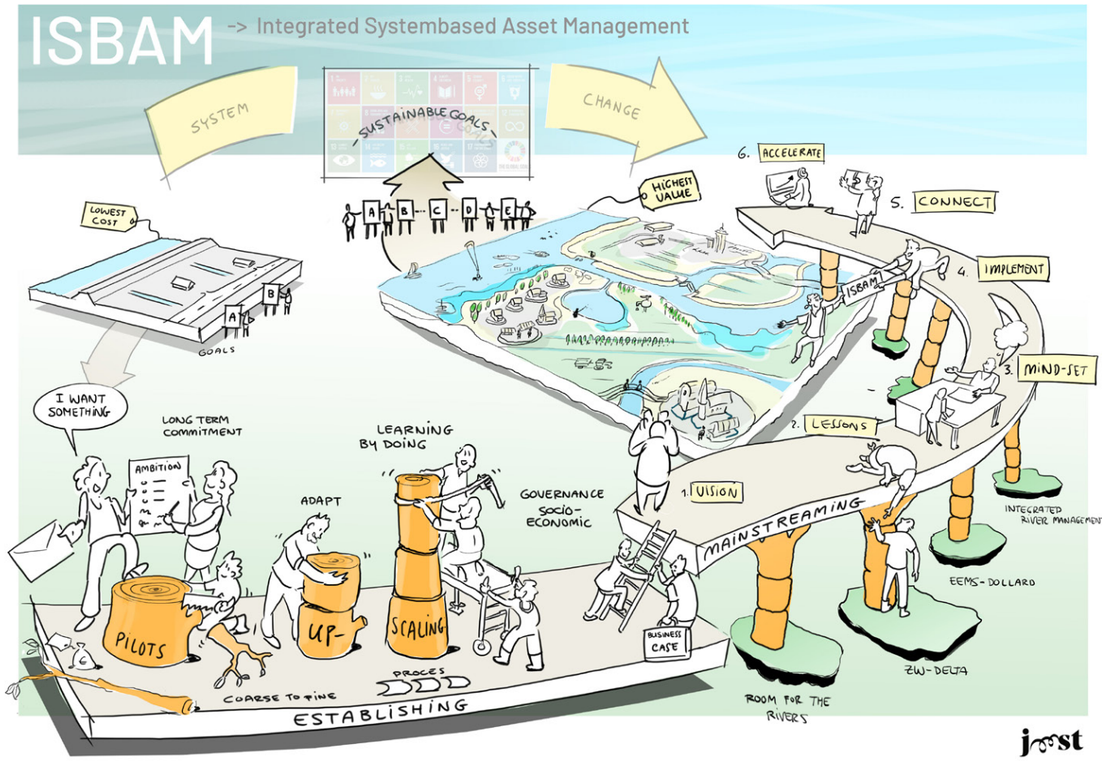
There are two primary reasons for water managers to adopt ISBAM instead of traditional approaches:

1. ISBAM enables more effective and sustainable development and management of water assets in the long term. By managing assets within a system or landscape context, opportunities arise to leverage natural forces and prevent the creation of lock-in situations and regrettable measures over longer timescales. NbS serve as an illustration of this concept, as salt marshes, for example, contribute to reducing wave impact on dykes, while employing landscape sponge functioning may lead to smaller infrastructure interventions and reduced costs. Problems are addressed at a system level rather than a local scale. Furthermore, harnessing the potential and dynamics of the landscape allows for more natural and gradual adaptation to changing climatic conditions, which is more challenging for traditional water assets.

2. Water assets play a significant societal role and can contribute to a better environment. In contemporary water management, the impacts on climate, biodiversity, and the social and natural environment are equally important considerations for water management organizations. Water assets often constitute impactful infrastructure within a landscape, underscoring the need to consider broader consequences. While this is already practiced in several projects, it is essential to make it standard practice.

ISBAM promotes a shift from a ‘lowest-cost’ landscape to a ‘highest-value’ landscape.

In a lowest-cost landscape, assets primarily focus on single-use performance, whereas assets in a 'highest-value' landscape work collaboratively to contribute to other system objectives, as exemplified by the sustainable development goals. While there are various paths to achieving such a paradigm shift, several building blocks tend to be universal, such as learning-by-doing, establishing long-term commitment and vision, and developing a business case. Through the roadmap of 'establishing mainstreaming', this transformative shift in working methods can be achieved.



Explaining the ISBAM approach

ISBAM is an approach for integrated and sustainable management of water assets and a pathway to mainstream nature-based solutions. These assets can include dykes and dunes, as well as 'grey' assets such as storm barriers. While 'traditional' asset management focuses on optimizing a single water asset, ISBAM concentrates on optimizing the entire system environment of the water asset, taking into account the following key principles:

- The context of the asset, which includes the surrounding landscape and socio-economic aspects.
- The management and political context
- The natural enabling dynamics and development of the system

ISBAM is an approach where the context of the asset is taken into account in developing and maintaining an asset.

It engages various aspects of its surrounding landscape. A dyke, for example, is considered as part of the broader landscape in which it is situated, including the area behind and outside the dyke. This landscape perspective includes multiple facets:

- The landscape as a natural system with natural processes. What are the soil, sediment, and water dynamics? How do natural processes work here? What are the physical and biological strengths and weaknesses?
- Understanding the historical values of the landscape. What have been historic, long-term developments and uses of the landscape? What are the present values of the landscape? How do we expect the system to develop in the future?
- Understanding the landscape driving a socio-economic system. How does the socio-economic part of the landscape function? Who are the stakeholders? How are the resources of the area used? What are the policies, rules, and regulations affecting local risks and opportunities?

Management and political context: integrate the management of multiple assets and functions within the landscape context.

In the broader context, other functions such as nature and recreation also come into play. As these non-water assets often involve different asset managers, ISBAM employs co-creation and co-decision-making processes with managers of other surrounding assets and relevant stakeholders. Various approaches are available to support integrated asset management. Relevant instruments include the "added value of joint action," simulation gaming, and the mutual gains approach.

Natural dynamics: embrace and leverage the natural dynamics of the system.

A fundamental principle in ISBAM is utilizing the potential of the (natural) landscape for the water asset. Natural dynamics can enhance functionality, resilience, and adaptability of the water asset. Managing a dynamic landscape involves a different design and management approach for the asset, as well as considering long-term development and inherent natural variability. Examples include foreshore, vegetation, sediment processes, and wind and wave dynamics.

ISBAM aligns with a broader trend.

The ISBAM approach aligns with a societal transformation in which water managers strive for a more sustainable and integrated approach, thereby contributing to a better society and a sustainable future. ISBAM corresponds to similar approaches that have already been successfully implemented in integrated river management, the utilization of nature-based solutions in dyke reinforcement projects, and the Room for the River projects. However, it has not yet become standard practice, and there is still much to learn about how to scale up these approaches while simultaneously promoting the mainstream adoption of nature-based solutions.

ISBAM in relation to mainstreaming Nature-based Solutions

Nature-based Solutions such as saltmarshes, dunes, and green dykes harness the potential of ecosystems for societal purposes like flood protection and nature restoration. One of the key motivations behind developing the ISBAM framework was to mainstream these types of NbS by establishing a working methodology that encourages a systems approach through guiding principles. This has resulted in a more comprehensive approach that extends beyond the mere implementation of NbS. Therefore, additional efforts are necessary to further promote the mainstream adoption of NbS.

Fortunately, significant progress has already been made in gaining a better understanding of the factors that enable the implementation and mainstreaming of NbS. At a broader level, numerous barriers and enablers have been identified in various contexts. Drawing mainly from Dutch experience, EcoShape has defined their own set of six "Building with Nature" (BwN) enablers, namely:

These enablers demonstrate significant alignment with the ISBAM principles, encompassing technical and social knowledge, governance settings, the business case, and capacity building. They are still generic and can be applied in various ways. One approach is to evaluate the readiness of a context for NbS by using a "traffic light" method for each enabler: if an enabler is green, it supports NbS implementation; if it is red, it does not. The next step involves addressing the "red" enablers and transforming them into "green." However, the guidance provided for each enabler is currently limited.

It's important to note that these enablers were developed for a Dutch context, and their universal applicability is still unknown. Additionally, the guidance for each enabler is still lacking, and different regions or countries may have distinct requirements. There is a significant need to further test the application of these enablers through practical experiences in different settings. This includes evaluating their (universal) applicability, recognizing regional variations, and developing more practical guidance on the conditions necessary for enabling NbS.

Based on the information mentioned above, the ISBAM approach and the enablers appear to be closely aligned. They can both be employed in various ways to promote the mainstream adoption of NbS, potentially reinforcing each other. The ISBAM principles offer guidance on how to manage assets in an integrated and sustainable manner, while the enablers provide guidance on the implementation process. Both aspects of mainstreaming require further development to enhance their effectiveness and better understand how they can complement each other, aiming for a unified NbS mainstreaming framework.

This is precisely the work that will be undertaken within the Interreg MANABAS COAST project, which focuses on developing a mainstreaming framework for the North Sea region, leveraging existing knowledge and experience. Additionally, the Interreg Northwest Europe project ResiRiver has been granted, which will further accelerate the mainstreaming of NbS in riverine settings and contribute to the establishment of a universal mainstreaming framework.

Outlook

The development of ISBAM was initiated with the intention of mainstreaming nature-based solutions (NbS). However, during the development process, it became evident that NbS are not an end goal in themselves but rather a means to fulfill multiple system requirements for achieving sustainable and resilient management of our water infrastructure, which is considered our most valuable landscape. The significance of ISBAM in creating sustainable asset-based solutions cannot be overstated. Nonetheless, there is still much work to be done in refining the approach and gaining a better understanding of its relationship with enabling factors for mainstreaming NbS.

The Interreg MANABAS COAST project aims to take the next step in this direction. We will utilize the existing six enablers and the ISBAM approach to establish a comprehensive mainstreaming framework for MANABAS COAST, drawing upon practical knowledge and experience that we will accumulate. The knowledge acquired throughout our project, along with the ResiRiver project, will serve to inspire and motivate water managers, decision makers, and other stakeholders to undergo a societal transformation from a narrow focus on water assets (the "lowest cost landscape") to a more holistic approach (the "highest value landscape").

The goal is to equip them with the necessary means and tools to successfully implement nature-based solutions in their unique local contexts.

Further readings

NNBF Book
International Guidelines on Natural and Nature-Based Features for Flood Risk Management: Engineering With Nature

BwN narrative:
What is Building with Nature ? - EcoShape

ISBAM website:
ISBAM - EcoShape

EcoShape enablers:
Enablers - EcoShape

Worldbank economic performance NbS:
World Bank: Assessing the Benefits and Costs of Nature-Based Solutions for Climate Resilience: A Guideline for Project Developers

IUCN Guideline:
2020-021-En.pdf (iucn.org)

Cloud to coast approach:
Start - Cloud to Coast (c5acloud2coast.eu)

MANABAS COAST website:
Interreg North Sea - MANABAS COAST

Colophon
This leaflet is inspired on a memo written by Stephanie Janssen and Judith Klostermann in cooperation with Jurre de Vries and Stanford Wilson. For more information on ISBAM, please contact Jurre de Vries, jurre.de.vries@rws.nl.