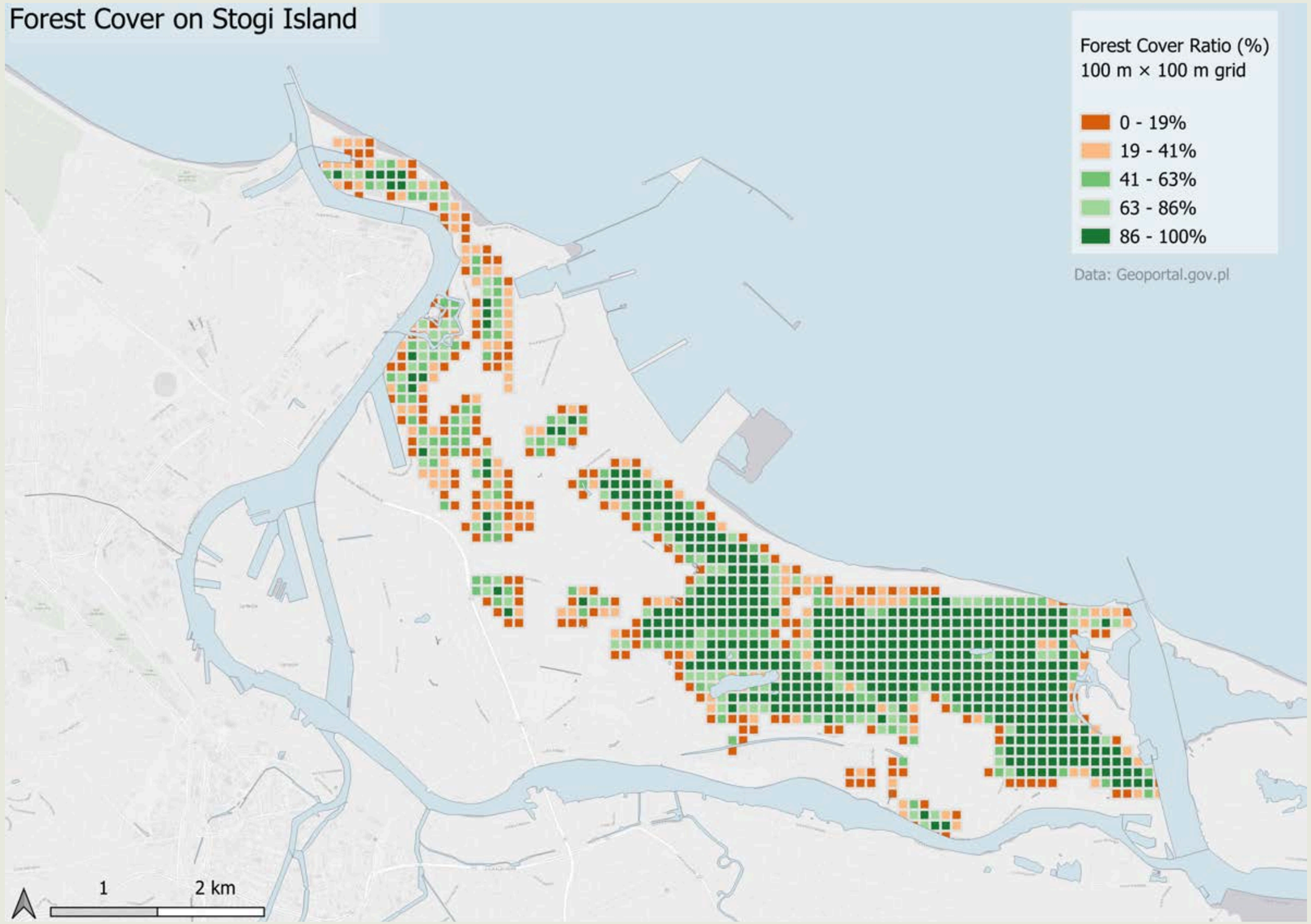
Stogi Island’s potential to contribute to a resilient Baltic Sea

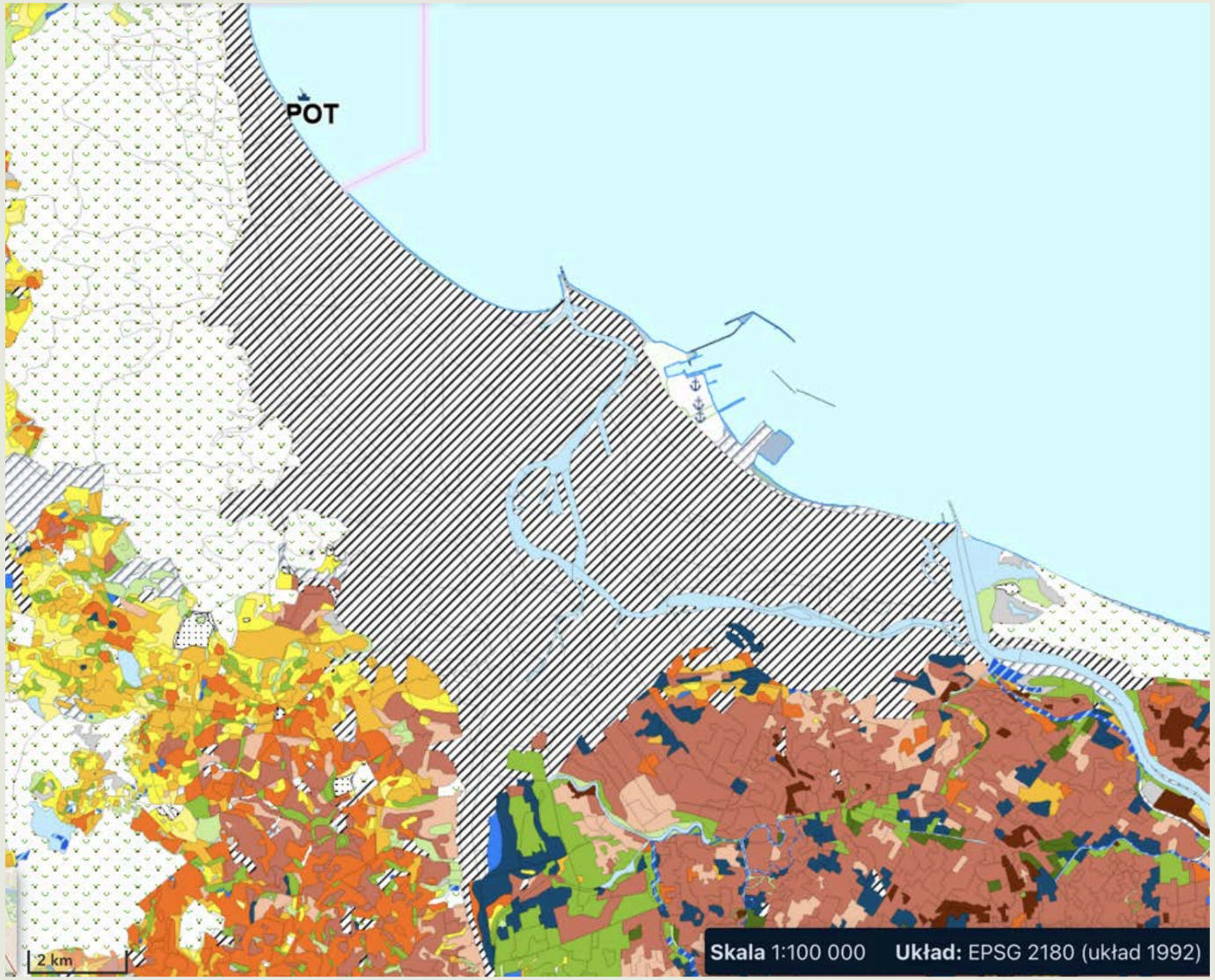
Marta Wiktoria Gontarz Gabriele Minkeviciute Saini Lankinen Karolina Wrzosek Kaur-Markus Mirka



Current forest cover on Stogi Island dictates future development



Built-up area for Gdańsk allows for potential developments



DATA: GEOPORTAL.GOV.PL

BUILT-UP AREA

What makes the current situation non-resilient



based on ESPON methodology
https://www.espon.eu/priorities/thematic-action-plans/places-resilient-to-crises

Curent status quo fails to address consequences of potential disruptions

CHALLENGE

Baltic Hub’s growth operates in spatial isolation from Stogi island creating a non-resilient district where the port relies on a single energy source, congests local traffic with trucks and fails to integrate local & environmental needs.



What needs to change and how do we solve the problems?

DECOUPLE LOGISTICS (REGIONAL RAIL SHIFT)

DECENTRALIZE ENERGY WITH LOCAL SOLAR MICROGRID

RECLAIM LAND FOR PEOPLE & NATURE

ALIGN PORT GROWTH WITH MUNICIPAL DEVELOPMENT BY MOVING SPACE-HEAVY CONTAINERS OFF-ISLAND VIA SHORT-DISTANCE RAIL, DEPLOYING LOCAL SOLAR MICRO-GRIDS TO ELIMINATE SINGLE-POINT ENERGY FAILURE & REINVEST RECLAIMED SPACE INTO VIBRANT RESIDENTIAL INFRASTRUCTURE.

How do we envision the future?

- Existing rails
- Future rails
- Dry port and solar micro-grid
- New neighbourghood
- Nature based solutions



Locally undertaken measures improve the resiliance of Stogi

MEASURE	BENEFIT
Dry Port	Removing traffic off the island, relocating it to the rural area connected by highway
Solar microgrid	Energy security
New neighborhood	Livable, attractive, green, self-sufficient urban environments attract investment
Nature based solutions	Ecological resilience against heat, water and noise

Transport resilience

PROBLEM

too much container movement by trucks

single critical rail connection to the island

SOLUTION

Dry port / inland extended gate

Shift container transport from road to rail

DIRECT BENEFIT

More resilient and diversified freight transport system

CO-BENEFIT

- Improved emergency accessibility
- Less local traffic congestion
- Lower air pollution
- Lower noise
- Less road deterioration
- Lower freight emissions
- Safer local roads
- More reliable everyday mobility

Energy source

PROBLEM

Highly dependant on an single energy source

SOLUTION

Rooftop solar panels

Solar canopies above parking areas

Battery Energy Storage Systems

Local microgrid with islanding capability

Energy-resilient housing

DIRECT BENEFIT

Greater energy redundancy and continuity of critical functions

CO-BENEFIT

- Lower emissions
- More renewable electricity
- Lower peak electricity demand
- Potentially lower energy costs
- EV charging opportunities
- Solar canopies provide shade
- Reduced heat island effect
- Greater household energy resilience

Limited land use

PROBLEM

Inefficient use of scarce land creates increasing conflict between port growth, residential needs and environmental functions

SOLUTION

Move space-intensive container sorting/storage inland

Reuse released port-side land

Develop a better port–city transition zone

DIRECT BENEFIT

Port growth becomes less dependent on consuming additional land on Stogi

CO-BENEFIT

- Space for solar energy
- Space for green infrastructure
- Space for housing where appropriate
- Space for public/community functions
- Better separation between heavy industry and residential areas
- More efficient use of valuable waterfront land

Environmental needs

PROBLEM

Community isolation

Heat island effect

Environmental needs

Residential development

SOLUTION

Nature-based solutions

New residential/community areas

Revitalized park areas

Energy-resilient housing

DIRECT BENEFIT

Stronger integration between port development and the surrounding district

CO-BENEFIT

- Reduced heat-island effect
- Better stormwater management
- Better flood resilience
- More biodiversity
- Improved public space
- Better quality of life
- Less community isolation
- Improved walkability

New housing area



Data from: https://obliview.brg.gda.pl/#

New housing area



Data from: https://obliview.brg.gda.pl/#

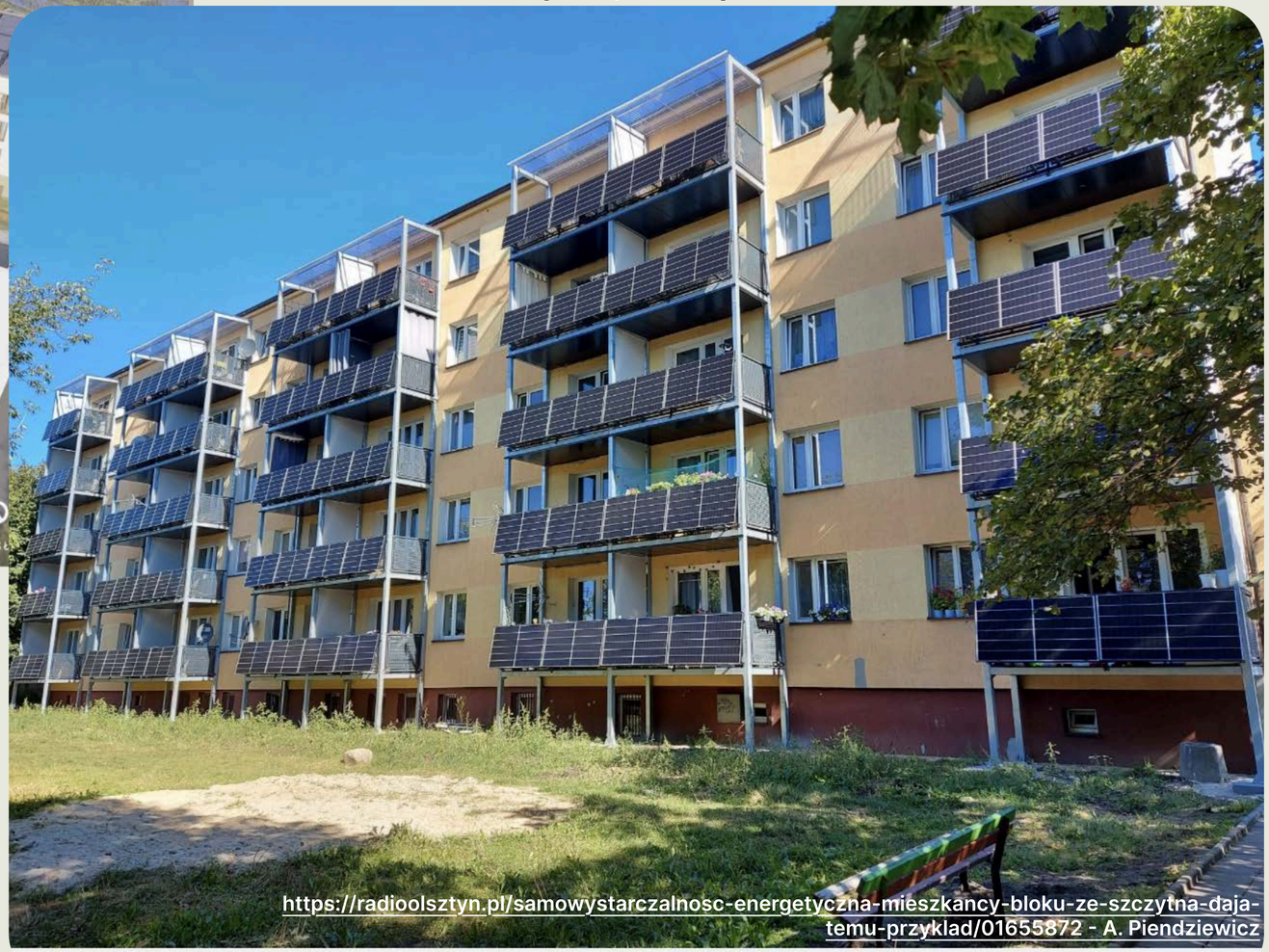
Energy solution inspiration



Source: https://wpoznaniu.pl/pierwsze-w-polsce-i-unikalne-w-europie-samowystarczalne-osiedle-wodorowe/

Śrem, project of the first self-sufficient hydrogen housing estate in Poland

Szczytno, solar pannels installed on the balconies



https://radioolsztyn.pl/samowystarczalnosc-energetyczna-mieszkancy-bloku-ze-szczytna-daja-temu-przyklad/01655872 - A. Piendziewicz

Fot. A. Piedziewicz

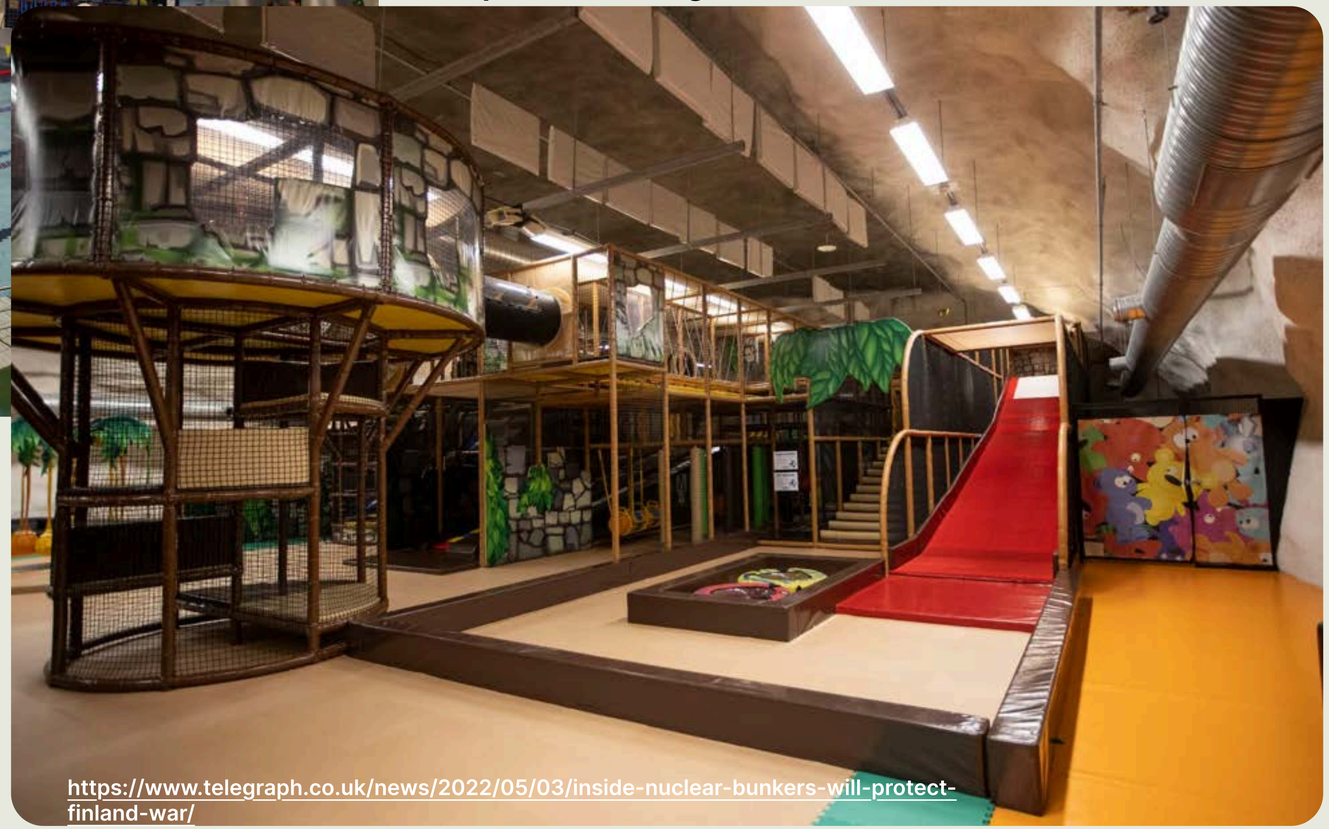
Security and multi-use solution inspiration



https://www.reuters.com/world/europe/finlands-massive-bomb-shelters-draw-world-helsinki-quest-security-2026-05-21/

Helsinki's underground swimming pool carved into solid bedrock, which can be drained and converted into a bomb shelter for 3,800 people,

The indoor children's play area at the Hakaniemi Arena, one of the civil defence spaces underground in the centre of Helsinki



https://www.telegraph.co.uk/news/2022/05/03/inside-nuclear-bunkers-will-protect-finland-war/

Revitalization of the green areas

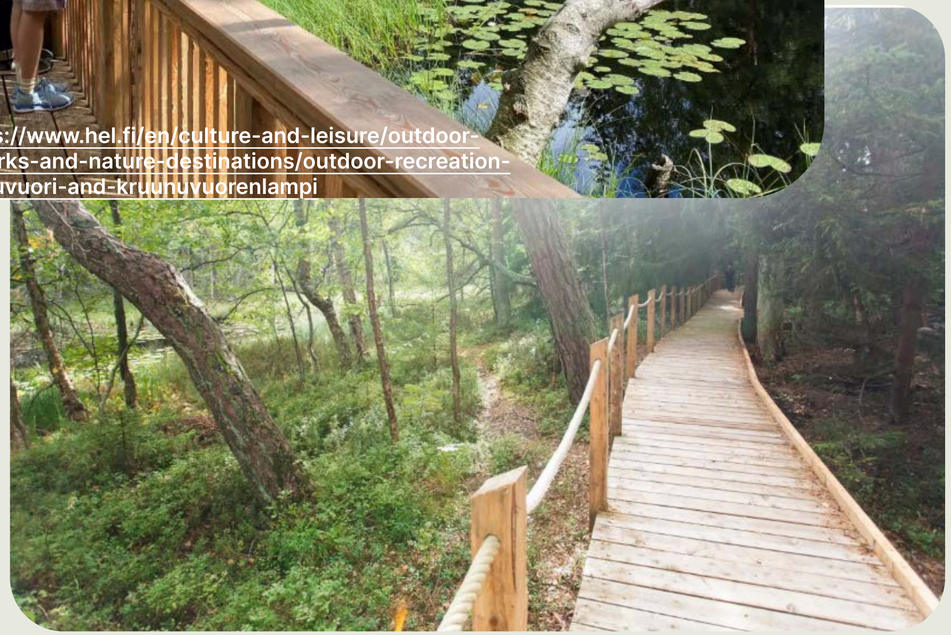


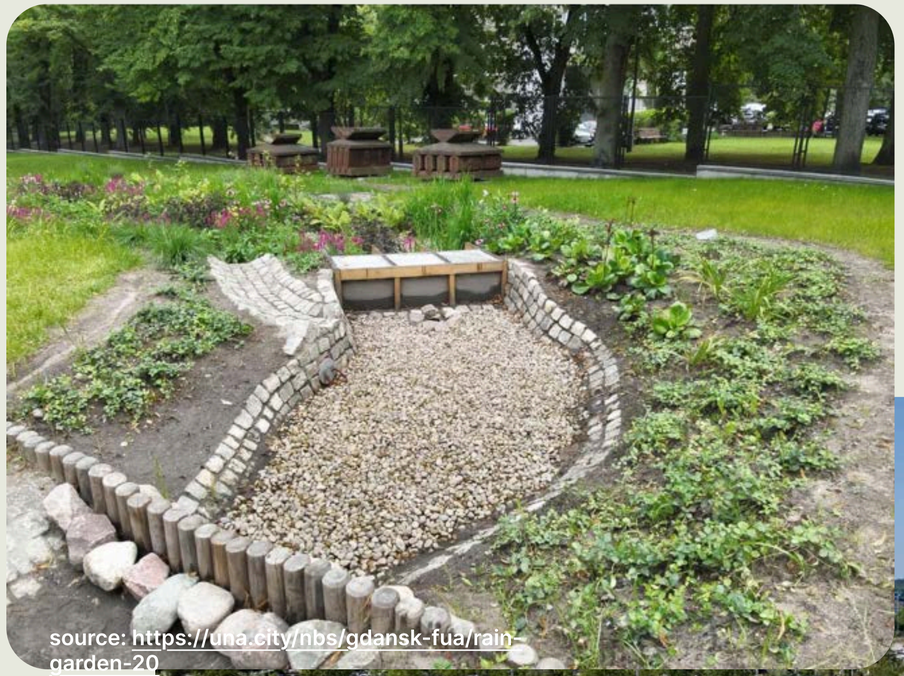
NBS inspiration

Kruunuvuori and Kruunuvuorenlampi, Helsinki



source: https://www.hel.fi/en/culture-and-leisure/outdoor-activities-parks-and-nature-destinations/outdoor-recreation-areas/kruunuvuori-and-kruunuvuorenlampi





source: https://una.city/nbs/gdansk-fua/rain-garden-20

The Rain Garden 2.0 project at Gdańsk University of Technology

Frihamnen, Gothenburg



source: https://www.goteborg.com/en/places/the-public-pool-in-frihamnen

Strategy for a bankable solution

NEW REVENUES + **SAVINGS** > **INVESTMENT COSTS**

- Income from ground-floor businesses and local taxes
- Surplus solar microgrid power sold directly to Baltic Hub and the local community
- Eco-tourism and leisure services

- Less road damage through fewer heavy trucks breaking regional highways and bridges

- Building of new dry port
- Implementation of solar panels and battery storage microgrid
- New housing area
- Upgrade of rail line 226

QUANTIFY SAVINGS → DEDICATE A FUND → REPAY DEBT

Resilient Pomorskie Region

MEASURE

- Decentralized energy systems
- Time-reactive tariffs to incentivize consumption off peak hours, applying real-time data to determine the price
- Creating incentives for up-scaling self sufficient and green neighborhoods

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BENEFITS

- Resilience
- National security
- Independence

Baltic Sea Region pioneering port electrification

MEASURE

Electrifying port infrastructure around the BSR

BENEFITS

Decarbonizing global transport of goods

Energy independence important for national security

Competitive advantage - companies increasingly favor ports that let them meet their own net-zero commitments

ACTION PLAN

BASED ON THE COMMUNICATION STRATEGY

01

INITIATION PHASE

Challenge identification & solution area

02

NORMATIVE PLANNING

Vision & scope maps

03

STRATEGIC PLANNING PHASE

Analysis the conflict of interests

04

OPERATIONAL PLANNING PHASE

Building the dry port and then neighborhood

05

EVALUATION PHASE

BSR & VASAB

Creating a dry port along with an energy-sufficient, vibrant Stogi operationalizes the VASAB 2040 Vision

Vibrant Pearl

We revitalize Stogi Island as a liveable, active coastal neighborhood while distributing logistics jobs and municipal tax base to inland secondary towns.

Resilient Strings

We shift freight to electrified rail while deploying solar energy production and storage in microgrids to buffer grid shocks.

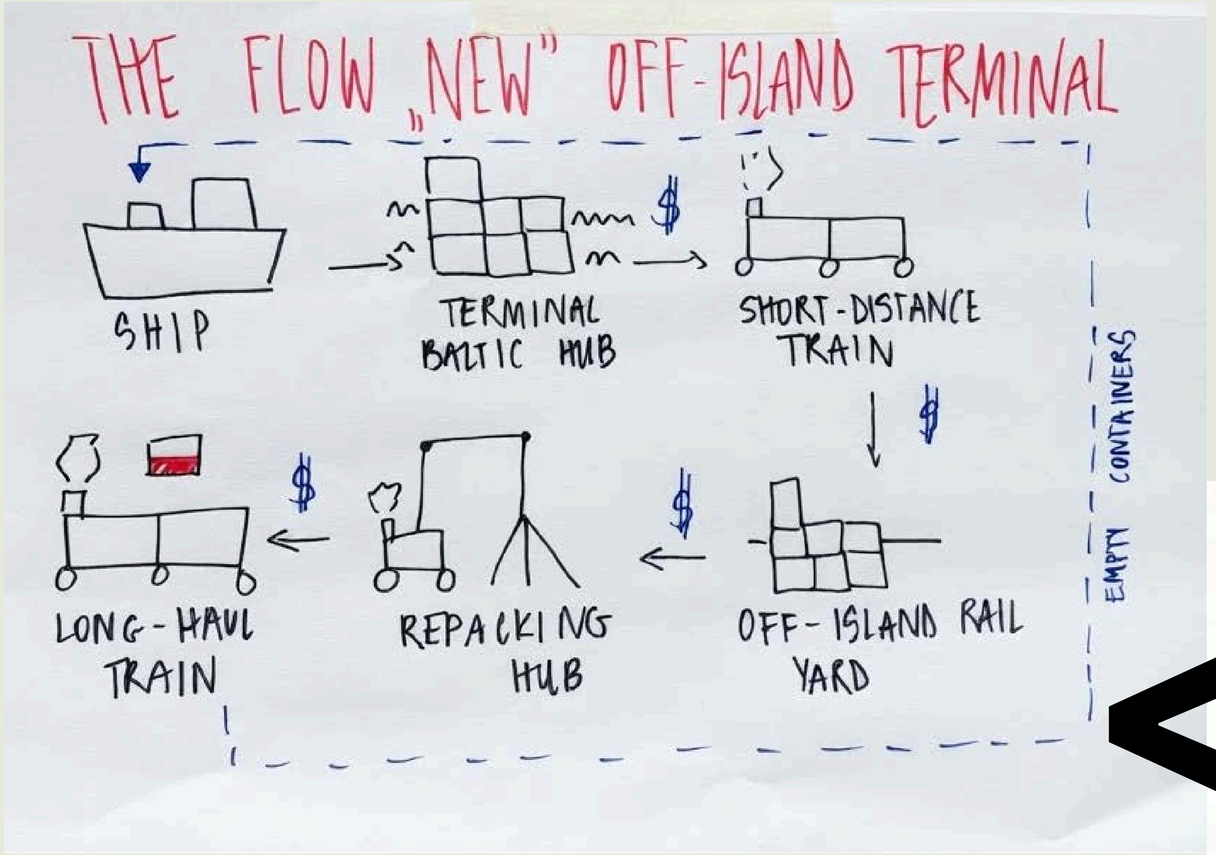
Protected Patches

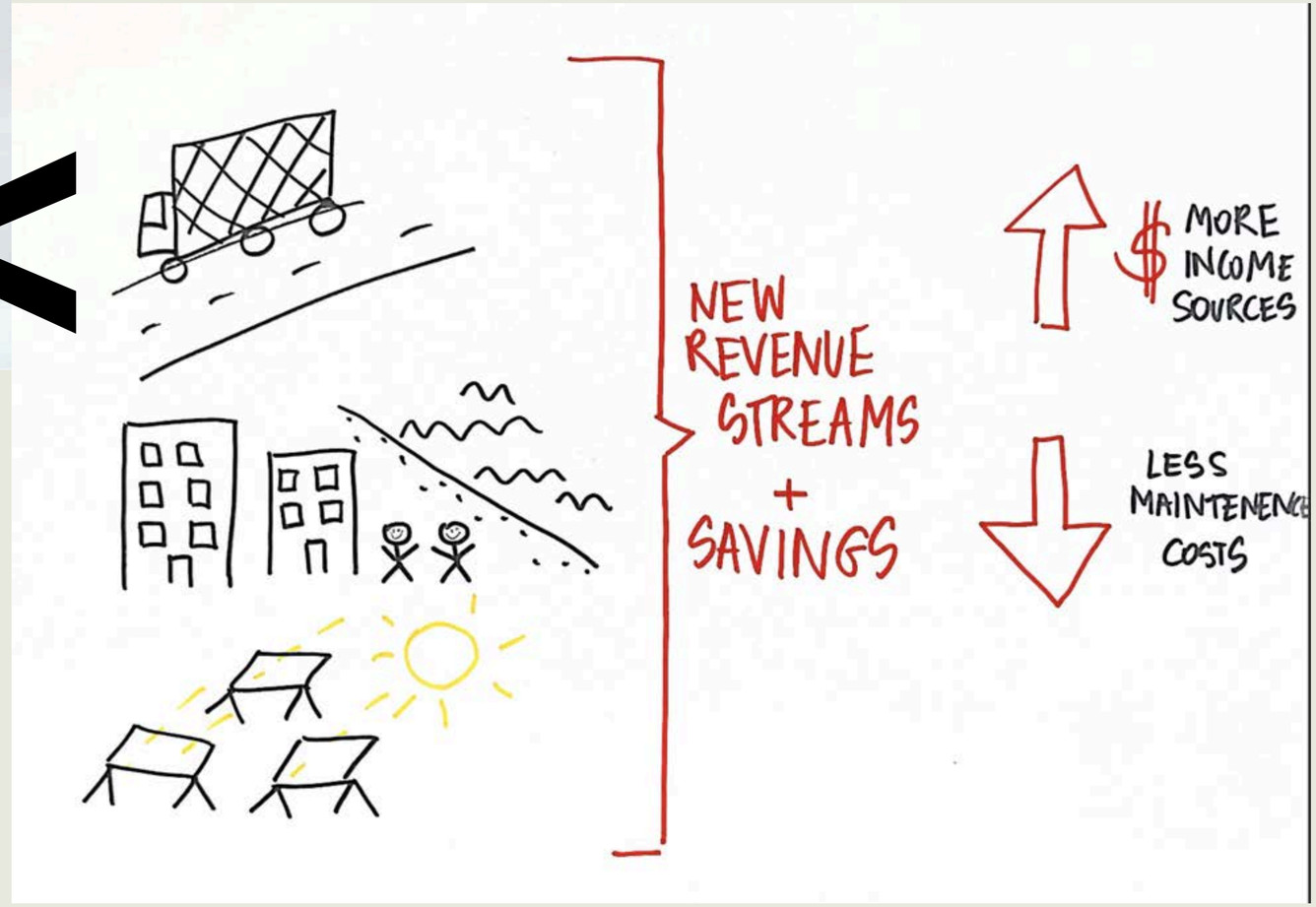
We take care of local environment such as coastal dunes and pine forests and through nature-based planning solutions and protect it from port sprawl.

Integrated systems

We align municipal planning, port authorities, and local communities into a coordinated, cross-sectoral spatial planning framework.

Thank you!


THE FLOW „NEW" OFF-ISLAND TERMINAL
SHIP
TERMINAL BALTIC HUB
SHORT-DISTANCE TRAIN
EMPTY CONTAINERS
LONG-HAUL TRAIN
REPACKING HUB
OFF-ISLAND RAIL YARD


NEW REVENUE STREAMS + SAVINGS
MORE INCOME SOURCES
LESS MAINTENENCE COSTS