Innovative Doctoral Courses for Sustainability (IDOCOS)

Meeting 3, assignment 2

Digital transformation and sustainable development

Wednesday, 29 March 2023 (9:00 – 10:30)

Introduction and questions related to assignment 2

Assignment 2:
Implementing digital transformation for sustainable development through projects

Write a report. Discuss implementing *digital transformation through projects* in a selected area of your interest (for example higher education, health care, energy, transport) ***with a sustainability goal perspective.***

Consider and use - conceptual framework and terminology in - literature.

Structure your text in a time perspective (history – present – future) and with a specific context; what is - current state?

What are - potentials in a specific socio-cultural context (geographic area - country, region – target group, stakeholders, culture etc)?

Risks and opportunities in - future?

How can change be achieved?

Consider also resistance to change.

Be creative, critical, constructive, realistic, visionary and innovative.

- Action
Digital transformation
A way forward
"A solution"

Maximum 3 000 words (500 words/page single spaced = 6 pages), excluding references.

Timeline with deadlines – **the closed group**

One deadline for both assignments 1+2 for delivering your draft paper and your peer review. Two draft papers plus your two peer reviews, to be delivered at the latest: **by 21 April.**

Meeting on assignment 2: Wednesday, **29 March** 2023 (9:00 – 10:30) Introduction and questions related to assignment 2.

Meeting, lessons learned: Wednesday, **10 May** 2023 (9:00 – 10:00) Reflections on how the learners have experienced the course. Here a few students will be invited to present their reports.

Evaluation of all papers and peer reviews will take place after they have been delivered by the students and the **results** will be announced/submitted to candidates: **22 May**.

Certificate to be issued: **26 May**.

Timeline with deadlines – **beta-group**

To complete the course, you have to:
Write one of the two, after your own choice, individual assignments.
The assignment should be submitted to the appropriate forum in the course website.

Deadline for delivering the paper: **21 April**.

The 30 first delivered to be evaluated and the **5 best papers to be announced 22 May.**

- Craugastor myllomyllon - A Guatemalan frog
- Spined dwarf mantis - Italy
- Scleria chevalieri - Senagalese plant
- Hawai‘i yellowwood
- Cuban palm tree - Roystonea stellate
- Jalpa false brook salamander - Guatemala
- Faramea chiapensis - Mexican plant
- Euchorium cubense - Cuban plant
- Banara wilsonii - Cuban plant
- Aloe silicicola - Madagascar plant
- Chitala lopis - A large fish Java
- Eriocaulon jordanii - grass Sierra Leone
- Amomum sumatranum - cardamom Sumatra
- Lost shark (Carcharhinus obsoletus)
- Cora timucua - lichen Florida
- Dama gazelle (Nanger dama) - Tunisia

- Agave lurida – succulent, Mexico
- Falso Maguey Grande - succulent Mexico
- Eriocaulon inundatum - Senegal
- Persoonia laxa - shrub Australia
- Nazareno (Monteverdia lineata) – plant, Cuba
  Wynberg conebush – plant, South Africa
- Wolseley conebush – plant, South Africa
- Schizothorax saltans - fish Kazakhstan
- Alphonsea hortensis, Sri Lankan tree species
- Lord Howe long-eared bat (Nyctophilus howensis)
- Deppea splendens - plant, Mexico
- Pass stubfoot toad (Atelopus senex) - Costa Rica
- Pseudoyersinia brevipennis - praying mantis, France

- 32 orchid species in Bangladesh
- 9 orchid species from Madagascar
- Smooth handfish, Tasmania
- 65 North American plants
- 22 frog species - Central and South America
- Chiriqui harlequin frog - Costa Rica
- Poison frog (Oophaga speciosa) - Panama
- Simeulue Hill mynas - bird
- 15 percent of mite species. Mites may not look or sound important, but they play key roles in their native ecosystems. If 15 percent of the world’s 1.25 million mite species were lost, we’re talking tens to hundreds of thousands of extinctions- a number the researchers predict will continue to rise.

- Barbodes disa - freshwater fish, Philippines
- Barbodes truncatulus - freshwater fish, Philippines
- Barbodes pachycheilus - freshwater fish, Philippines
- Barbodes palaemophagus - freshwater fish, Philippines
- Barbodes amarus - freshwater fish, Philippines
- Barbodes manalak - freshwater fish, Philippines
- Barbodes clemensi - freshwater fish, Philippines
- Barbodes flavifuscus - freshwater fish, Philippines
- Barbodes katolo - freshwater fish, Philippines
- Barbodes palata - freshwater fish, Philippines
- Barbodes baoulan - freshwater fish, Philippines
- Barbodes herrei - lfreshwater fish, Philippines
- Barbodes lanaoensis - freshwater fish, Philippines
- Barbodes resimus - freshwater fish, Philippines
- Barbodes tras - freshwater fish, Philippines

CONSERVATION | OPINION

What We've Lost: The Species Declared Extinct in 2020

Dozens of frogs, fish, orchids and other species—many unseen for decades—may no longer exist because of humanity's destructive effects on the planet

By John R. Platt on January 13, 2021

"A few months ago a group of scientists warned about the rise of **"extinction denial"** an effort much like climate denial to mischaracterize the extinction crisis and suggest that human activity isn't really having a damaging effect on ecosystems and the whole planet."

Invasion and extinction

SEARCH SIGN UP EARTH·ORG MEMBERS

Climate Change | Energy | Pollution | Policy & Economics | Oceans | Biodiversity | Conservation | Solutions | Guides

The Anthropocene refers to humanity's most recent and ecologically destructive period – perhaps starting around the time of the Industrial Revolution. Although the term hasn't been officially adopted by The International Union of Geological Sciences, many specialists agree that we are currently in the Sixth Mass Extinction. While *Homo Sapiens* is the only species capable of disrupting the entire planet's biosphere, it is also the only one resourceful enough to prevent further rapid declines in biological diversity. This article looks at five major effects of biodiversity loss – and why humans should care. But before discussing the impacts of losing this natural, vital variety, it is helpful to first appreciate the full scope of biodiversity.

THE IUCN RED LIST
OF THREATENED SPECIES™

About | Assessment process | Resources & Publications

Names - common, scientific, regions etc...

Advanc

More than 42,100 species are threatened with extinction

That is still 28% of all assessed species.

The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species.

AMPHIBIANS 41%	MAMMALS 27%	CONIFERS 34%	BIRDS 13%	SHARKS & RAYS 37%
REEF CORALS 36%	SELECTED CRUSTACEANS 28%	REPTILES 21%	CYCADS 69%	

feedback

https://www.iucnredlist.org/

Insects

80% of wild plants rely on insects for pollination

"The world has lost 5% to 10% of all insect species in the last 150 years — or between 250,000 and 500,000 species, according to a February 2020 study in the journal Biological Conservation."

"…one million species are facing extinction in the coming decades, half of them being insects "

"…a loss of biomass of flying insects of about 75% over 30 years. "

"We are causing insect extinctions by driving habitat loss, degradation, and fragmentation, use of polluting and harmful substances, the spread of invasive species, global climate change, direct overexploitation, and co-extinction of species dependent on other species.

" …decline of key ecosystem services on which humanity depends. From pollination and decomposition, to being resources for new medicines"

(Pedro Cardoso, Philip S. Barton, Klaus Birkhofer, Filipe Chichorro, Charl Deacon, Thomas Fartmann, Caroline S. Fukushima, René Gaigher, Jan C. Habel, Caspar A. Hallmann, Matthew J. Hill, Axel Hochkirch, Mackenzie L. Kwak, Stefano Mammola, Jorge Ari Noriega, Alexander B. Orfinger, Fernando Pedraza, James S. Pryke, Fabio O. Roque, Josef Settele, John P. Simaika, Nigel E. Stork, Frank Suhling, Carlien Vorster, Michael J. Samways, Scientists' warning to humanity on insect extinctions, Biological Conservation, Volume 242, 2020, 108426,ISSN 0006-3207, https://doi.org/10.1016/j.biocon.2020.108426.)

The insect apocalypse: ‘Our world will grind to a halt without them’

“Insects have declined by 75% in the past 50 years – and the consequences may soon be catastrophic. Biologist Dave Goulson reveals the vital services they perform”

Dave Goulson (2021, Guardian)

Are We Really in a 6th Mass Extinction? Here's The Science

ENVIRONMENT 18 November 2019

By FREDERIK SALTRE & COREY J. A. BRADSHAW, THE CONVERSATION

"…today's extinctions per million species-years, we come up with a rate that is between ten and 10,000 times higher than the background rate."

Panda.org estimates that

50%

OF THE WORLD'S ORIGINAL FORESTS HAVE DISAPPEARED.

This is especially disastrous since at least half of earth's species live in old-growth tropical forests.

At a rate

10 TIMES

HIGHER THAN POSSIBLE REGROWTH.

BiologicalDiversity.org states

40%

OF EARTH'S LAND IS CONSUMED BY HUMAN FOOD PRODUCTION.

UP FROM ONLY 7% IN 1700

50%

OF EARTH'S TOTAL LAND MASS HAS BEEN TRANSFORMED FOR HUMAN USE.

According to Leading Scientists;

30,000	6	150	Up To 55,000
species per year on average are being driven to extinction.	Per hour	Per day	Per year

50%

The World Animal Foundation predicts that up to

ONE-HALF OF ALL SPECIES could become extinct by 2050.

https://colossal.com/de-extinction/

Wild mammals make up only a few percent of the world's mammals

Livestock make up 62% of the world's mammal biomass; humans account for 34%; and wild mammals are just 4%.

by Hannah Ritchie
December 15, 2022

Birds on earth

70% Chickens and other poultry

30% Wild birds

We destroy other species’ habitats and eat them

Invasive alien species

"Invasive alien species are plants, animals, fungi and microorganisms that have been intentionally or unintentionally moved to a new environment and where they spread rapidly and cause damage to biodiversity, the economy and potentially human health."

Naturvårdsverket - The Swedish Environmental Protection Agency

https://www.naturvardsverket.se/en/avoid-spreading-invasive-alien-species#:~:text=Invasive%20alien%20species%20are%20plants,economy%20and%20potentially%20human%20health.

GLOBAL INVASIVE SPECIES DATABASE

ISSG Invasive Species Specialist Group

HOME | ABOUT THE GISD | ABOUT EICAT | HOW TO USE | CONTACTS

100 OF THE WORST

About the GISD

Introduction

The Global Invasive Species Database is a free, online searchable source of information about alien and invasive species that negatively impact biodiversity. The GISD aims to increase public awareness about invasive species and to facilitate effective prevention and management activities by disseminating specialist's knowledge and experience to a broad global audience. It focuses on invasive alien species that threaten native biodiversity and natural areas and covers all taxonomic groups from micro-organisms to animals and plants.

The Global Invasive Species Database (GISD) is managed by the Invasive Species Specialist Group (ISSG) of the IUCN Species Survival Commission. It was developed between 1998 and 2000 as part of the global initiative on invasive species led by the erstwhile Global Invasive Species Programme (GISP).

- The Nile perch, native to Ethiopia, has had a devastating impact in East Africa where it was introduced in 1962. In Lake Victoria, the Nile perch has driven more than 200 native species of fish to extinction
- Brown Trout, originally native to Europe, North Africa, and western Asia, but today they can be found all over the world. Outcompete native species.
- Mozambique tilapia, introduced in over 90 countries on five continents
- Lionfish, one of the most aggressively invasive species in the world. Native to the Indo-Pacific and the Red Sea
- Rainbow trout, Largemouth bass, Northern Snakehead.

10 of the Most Invasive Fish Species in the World
By Jaymi Heimbuch, Treehugger , 2020

NEWS | Stalin's crabs march into foreign waters | SHARE & SAVE —

WORLD

Stalin's crabs march into foreign waters

Josef Stalin is creating jobs in the Arctic as Norway seeks to halt a "Red Army" of monster crabs that some experts fear could sweep as far south as the Mediterranean.

Krabbor ödelägger norska fiskevatten

PUBLICERAD: 26 FEBRUARI 2003 | UPPDATERAD: 8 MARS 2011

NYHETER

Stalinkrabbor hotar torskens överlevnad

The king crab or, as it is also called, the Stalin crab, may be about to devastate Norwegian fishing waters. Armies of the giant crab march forward and vacuum the seabed for sustenance.

DR.DK DRTV DR LYD

DR SENESTE NYT **INDLAND** UDLAND PENGE POLITIK REGIONALT VEJRET

INDLAND

Nuttet skadedyr med kurs mod den danske grænse: 'Jeg tror, vi har noget grimt på vej'

Cute pest headed for the Danish border: 'I think we have something nasty coming'

The raccoon, native to North America, established in Germany, moving into Denmark

Invasion av monsterräkor – mördar svenska djur

Isabel Hallqvist 9 Mars, 2023

Dikerogammarus villosus, also known as the **killer shrimp**

The invasive shrimp has been targeted in Lake Vättern, Sweden.

“Killer shrimp" because it kills more prey than it can eat.

It is the first time it appears in Sweden and the Nordic countries.

In the past, larger predatory marten has caused problems in, among other places, Great Britain and Germany - where it has out-competed native species.

With the help of humans, the shrimp has spread from the Caspian Sea to several countries, through boats.
Impossible to eradicate

Originally found in the lower courses of large rivers in the Black Sea and Caspian Sea

100 OF THE WORLD'S WORST INVASIVE ALIEN SPECIES

MICRO-ORGANISM

avian malaria	*(Plasmodium relictum)*
banana bunchy top virus	*(Banana bunchy top virus)*
rinderpest virus	*(Rinderpest virus)*

MACRO-FUNGI

chestnut blight	*(Cryphonectria parasitica)*
crayfish plague	*(Aphanomyces astaci)*
Dutch elm disease	*(Ophiostoma ulmi)*
frog chytrid fungus	*(Batrachochytrium dendrobatidis)*
phytophthora root rot	*(Phytophthora cinnamomi)*

AQUATIC PLANT

caulerpa seaweed	*(Caulerpa taxifolia)*
common cord-grass	*(Spartina anglica)*
wakame seaweed	*(Undaria pinnatifida)*
water hyacinth	*(Eichhornia crassipes)*

LAND PLANT

African tulip tree	*(Spathodea campanulata)*
black wattle	*(Acacia mearnsii)*
Brazilian pepper tree	*(Schinus terebinthifolius)*
cogon grass	*(Imperata cylindrica)*
cluster pine	*(Pinus pinaster)*
erect pricklypear	*(Opuntia stricta)*
fire tree	*(Myrica faya)*
giant reed	*(Arundo donax)*
gorse	*(Ulex europaeus)*
hiptage	*(Hiptage benghalensis)*
Japanese knotweed	*(Fallopia japonica)*
Kahili ginger	*(Hedychium gardnerianum)*
Koster's curse	*(Clidemia hirta)*
kudzu	*(Pueraria montana var. lobata)*
lantana	*(Lantana camara)*
leafy spurge	*(Euphorbia esula)*
leucaena	*(Leucaena leucocephala)*
melaleuca	*(Melaleuca quinquenervia)*
mesquite	*(Prosopis glandulosa)*
miconia	*(Miconia calvescens)*
mile-a-minute weed	*(Mikania micrantha)*
mimosa	*(Mimosa pigra)*
privet	*(Ligustrum robustum)*
pumpwood	*(Cecropia peltata)*
purple loosestrife	*(Lythrum salicaria)*
quinine tree	*(Cinchona pubescens)*
shoebutton ardisia	*(Ardisia elliptica)*

LAND PLANT (CONTINUED)

Siam weed	*(Chromolaena odorata)*
strawberry guava	*(Psidium cattleianum)*
tamarisk	*(Tamarix ramosissima)*
wedelia	*(Sphagneticola trilobata)*
yellow Himalayan raspberry	*(Rubus ellipticus)*

AQUATIC INVERTEBRATE

Chinese mitten crab	*(Eriocheir sinensis)*
comb jelly	*(Mnemiopsis leidyi)*
fish hook flea	*(Cercopagis pengoi)*
golden apple snail	*(Pomacea canaliculata)*
green crab	*(Carcinus maenas)*
marine clam	*(Potamocorbula amurensis)*
Mediterranean mussel	*(Mytilus galloprovincialis)*
Northern Pacific seastar	*(Asterias amurensis)*
zebra mussel	*(Dreissena polymorpha)*

LAND INVERTEBRATE

Argentine ant	*(Linepithema humile)*
Asian longhorned beetle	*(Anoplophora glabripennis)*
Asian tiger mosquito	*(Aedes albopictus)*
big-headed ant	*(Pheidole megacephala)*
common malaria mosquito	*(Anopheles quadrimaculatus)*
common wasp	*(Vespula vulgaris)*
crazy ant	*(Anoplolepis gracilipes)*
cypress aphid	*(Cinara cupressi)*
flatworm	*(Platydemus manokwari)*
Formosan subterranean termite	*(Coptotermes formosanus shiraki)*
giant African snail	*(Achatina fulica)*
gypsy moth	*(Lymantria dispar)*
khapra beetle	*(Trogoderma granarium)*
little fire ant	*(Wasmannia auropunctata)*
red imported fire ant	*(Solenopsis invicta)*
rosy wolf snail	*(Euglandina rosea)*
sweet potato whitefly	*(Bemisia tabaci)*

AMPHIBIAN

bullfrog	*(Rana catesbeiana)*
cane toad	*(Bufo marinus)*
Caribbean tree frog	*(Eleutherodactylus coqui)*

FISH

brown trout	*(Salmo trutta)*
carp	*(Cyprinus carpio)*
large-mouth bass	*(Micropterus salmoides)*

FISH (CONTINUED)

Mozambique tilapia	*(Oreochromis mossambicus)*
Nile perch	*(Lates niloticus)*
rainbow trout	*(Oncorhynchus mykiss)*
walking catfish	*(Clarias batrachus)*
Western mosquito fish	*(Gambusia affinis)*

BIRD

Indian myna bird	*(Acridotheres tristis)*
red-vented bulbul	*(Pycnonotus cafer)*
starling	*(Sturnus vulgaris)*

REPTILE

brown tree snake	*(Boiga irregularis)*
red-eared slider	*(Trachemys scripta)*

MAMMAL

brushtail possum	*(Trichosurus vulpecula)*
domestic cat	*(Felis catus)*
goat	*(Capra hircus)*
grey squirrel	*(Sciurus carolinensis)*
macaque monkey	*(Macaca fascicularis)*
mouse	*(Mus musculus)*
nutria	*(Myocastor coypus)*
pig	*(Sus scrofa)*
rabbit	*(Oryctolagus cuniculus)*
red deer	*(Cervus elaphus)*
red fox	*(Vulpes vulpes)*
ship rat	*(Rattus rattus)*
small Indian mongoose	*(Herpestes javanicus)*
stoat	*(Mustela erminea)*

Species were selected for the list using two criteria: their serious impact on biological diversity and/or human activities, and their illustration of important issues of biological invasion. To ensure a wide variety of examples, only one species from each genus was selected. **Absence from the list does not imply that a species poses a lesser threat.**

Development of the *100 of the World's Worst Invasive Alien Species* list has been made possible by the support of the Fondation d'Entreprise TOTAL (1998 - 2000).

For further information on these and other invasive alien species consult The *Global Invasive Species Database*:

www.issg.org/database

100 OF THE WORLD'S WORST INVASIVE ALIEN SPECIES

A SELECTION FROM THE GLOBAL INVASIVE SPECIES DATABASE

Published by

ISSG Invasive Species Specialist Group

Contribution to the Global Invasive Species Programme (GISP)

IUCN The World Conservation Union

Species Survival Commission

In Association with

bionet

Actions

De-extinction

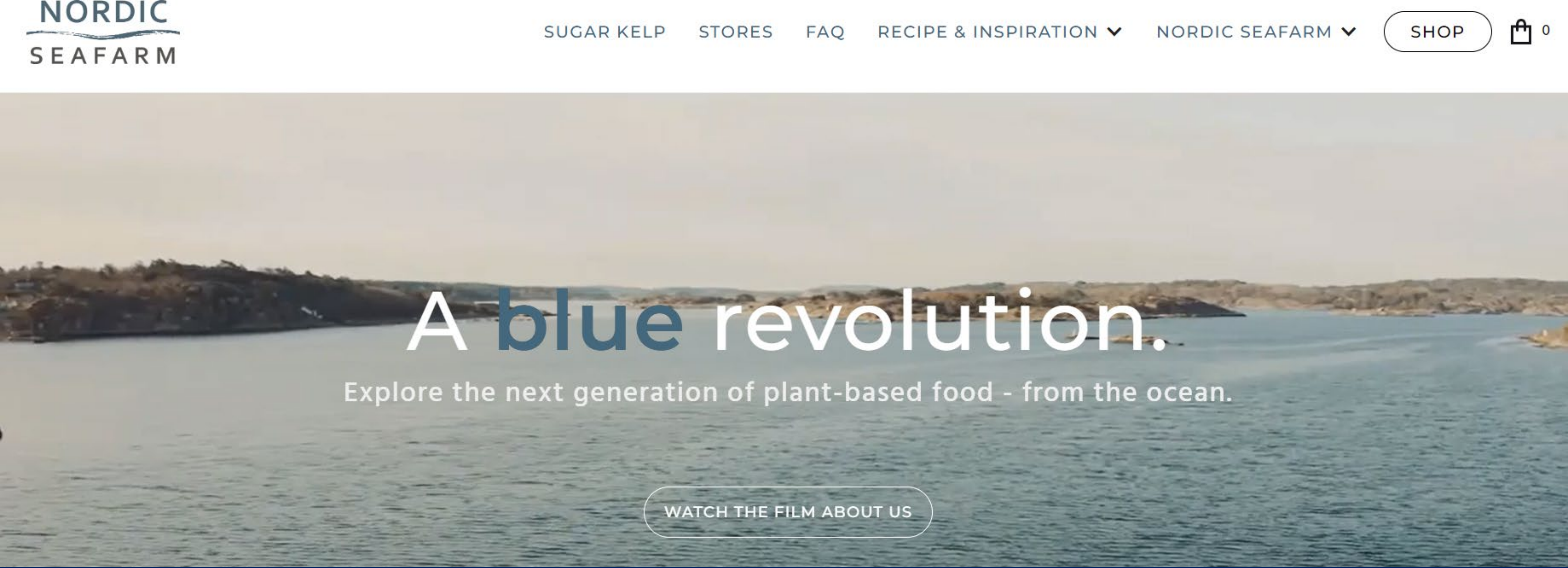
Founded in 2021 by tech entrepreneur Ben Lamm and Harvard University geneticist George Church, the company first said it would re-create the mammoth. And a year later it announced such an effort for the thylacine, aka the Tasmanian tiger. Now, with the launch of a new Avian Genomics Group and a reported $150 million of additional investment, the long-gone dodo joins the lineup.

Habitat protection

About 12 percent of the land around the world is under some form of protection (national parks etc.), *less than six percent* of the ocean is protected. Hope Spots allow us to plan for the future and look beyond current marine protected areas (MPAs), which are like national parks on land where exploitative uses like fishing and deep sea mining are restricted. Hope Spots are often areas that need new protection, but they can also be existing MPAs where more action is needed. Provide hope due to:

- •A special abundance or diversity of species, unusual or representative species, habitats or ecosystems
- •Particular populations of rare, threatened or endemic species
- •A site with potential to reverse damage from negative human impacts
- •The presence of natural processes such as major migration corridors or spawning grounds
- •Significant historical, cultural or spiritual values
- •Particular economic importance to the community

Food production



"We need to find more nutritious crops where we go straight to the calorie source and look beyond the arable land that is diminishing day by day. Nordic Seafarm wants to drive a blue revolution where together we can use the ocean to grow decent stuff for a growing population."

Henrik Hansson, IDOCOS (2023-03-29)

Our Work

International Initiative

Research Partners

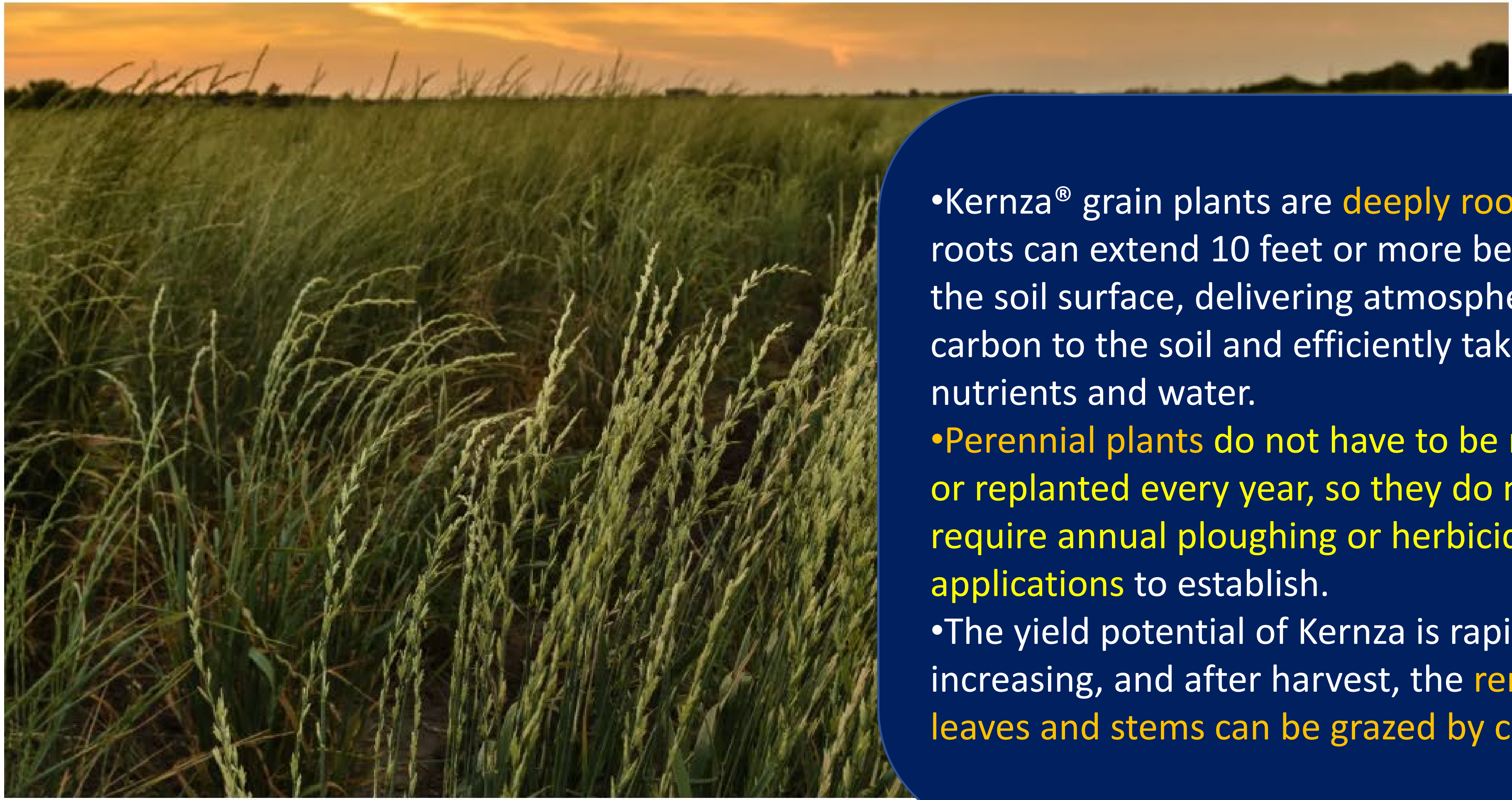
The Global Inventory Project

Perennial Grain Crops

Kernza®

Perennial Legumes

Perennial



- Kernza® grain plants are deeply rooted. The roots can extend 10 feet or more beneath the soil surface, delivering atmospheric carbon to the soil and efficiently taking up nutrients and water.
- Perennial plants do not have to be reseeded or replanted every year, so they do not require annual ploughing or herbicide applications to establish.
- The yield potential of Kernza is rapidly increasing, and after harvest, the remaining leaves and stems can be grazed by cattle.

Kernza® Grain

FishFarm

https://www.gardsfisk.se/

Producing the world's most durable fish

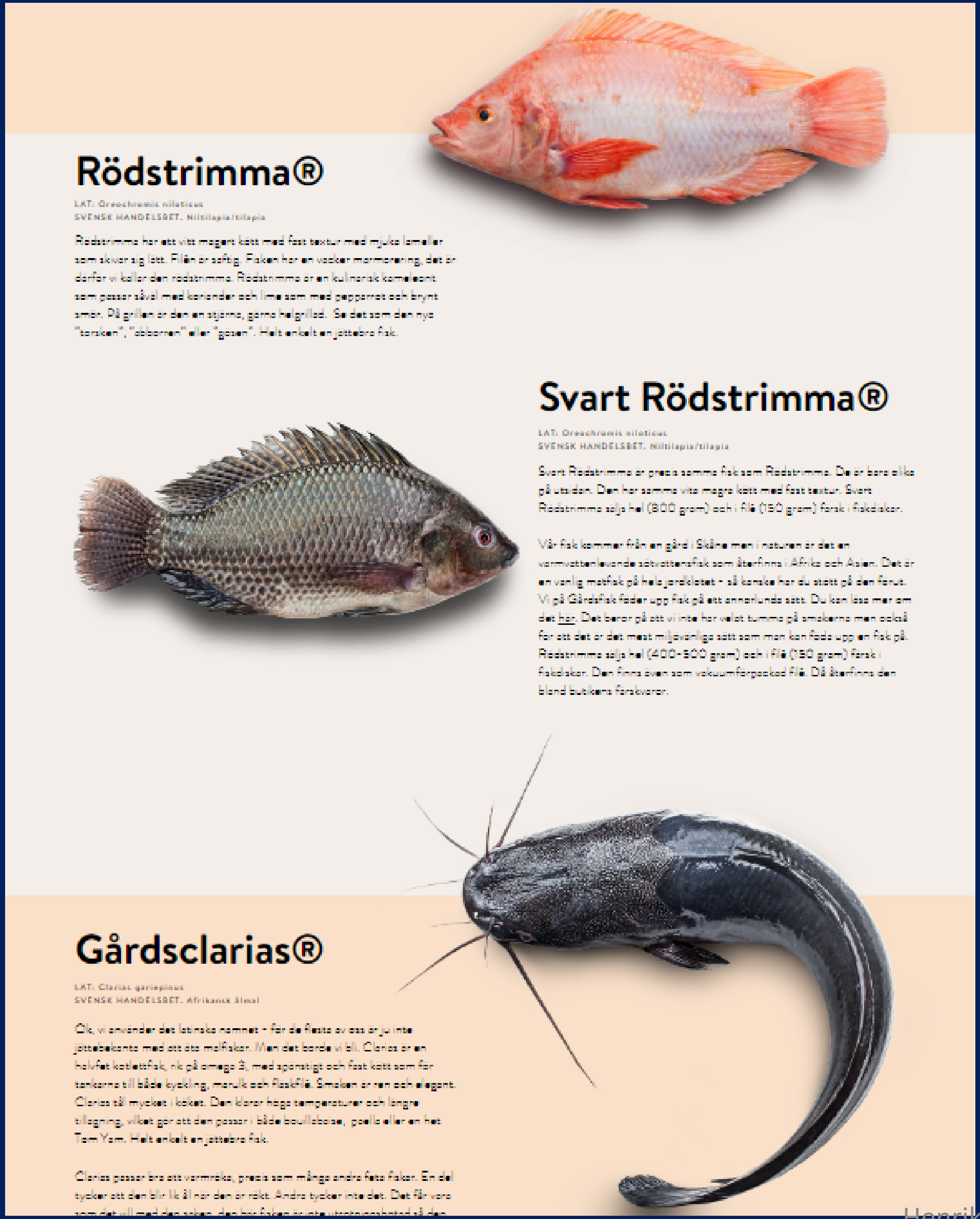
Pools on land

Integrated agricultural and aquaculture

Nutrients from fish breeding in agriculture

Omnivorous – raised higher proportion of vegetables

Robust fish- never needed medicines.



Rödstrimma®

LAT: Oreochromis niloticus
SVENSK HANDELSBET. Niltilapia/tilapia

Rödstrimma har ett vitt magert kött med fast textur med mjuka lameller som skiver sig lätt. Filén är saftig. Fisken har en vacker marmorering, det är därför vi kallar den rödstrimma. Rödstrimma är en kulinarisk kameleont som passar såväl med koriander och lime som med pepparrot och brynt smör. På grillen är den en stjärna, gärna helgrillad. Se det som den nya "torsken", "abborren" eller "gösen". Helt enkelt en jättebra fisk.

Svart Rödstrimma®

LAT: Oreochromis niloticus
SVENSK HANDELSBET. Niltilapia/tilapia

Svart Rödstrimma är precis samma fisk som Rödstrimma. De är bara olika på utsidan. Den har samma vita magra kött med fast textur. Svart Rödstrimma säljs hel (800 gram) och i filé (150 gram) färsk i fiskdiskar.

Vår fisk kommer från en gård i Skåne men i naturen är det en varmvattenlevande sötvattensfisk som återfinns i Afrika och Asien. Det är en vanlig matfisk på hela jordklotet – så kanske har du stött på den förut. Vi på Gårdsfisk föder upp fisk på ett annorlunda sätt. Du kan läsa mer om det här. Det beror på att vi inte har velat tumma på smakerna men också för att det är det mest miljövänliga sätt som man kan föda upp en fisk på. Rödstrimma säljs hel (400–800 gram) och i filé (150 gram) färsk i fiskdiskar. Den finns även som vakuumförpackad filé. Då återfinns den bland butikens frysvaror.

Gårdsclarias®

LAT: Clarias gariepinus
SVENSK HANDELSBET. Afrikansk ålmal

Ok, vi använder det latinska namnet – för de flesta av oss är ju inte jättebekanta med att äta malfiskar. Men det borde vi bli. Clarias är en halvfet kotlettfisk, rik på omega 3, med spänstigt och fast kött som för tankarna till både kyckling, marulk och fläskfilé. Smaken är ren och elegant. Clarias tål mycket i köket. Den klarar höga temperaturer och längre tillagning, vilket gör att den passar i både bouillabaise, paella eller en het Tom Yam. Helt enkelt en jättebra fisk.

Clarias passar bra att varmröka, precis som många andra feta fiskar. En del tycker att den blir lik ål när den är rökt. Andra tycker inte det. Det får vara

Pools in the farm
Closed ecosystem
African fish species

Honey produced in Stockholm city on rooftop

Pollinator decline - massive concern - impacts on food production, human health, and ecosystem functioning, including the capacity of plants to provide essential services such as carbon sequestration.

Greenhouse in the food store

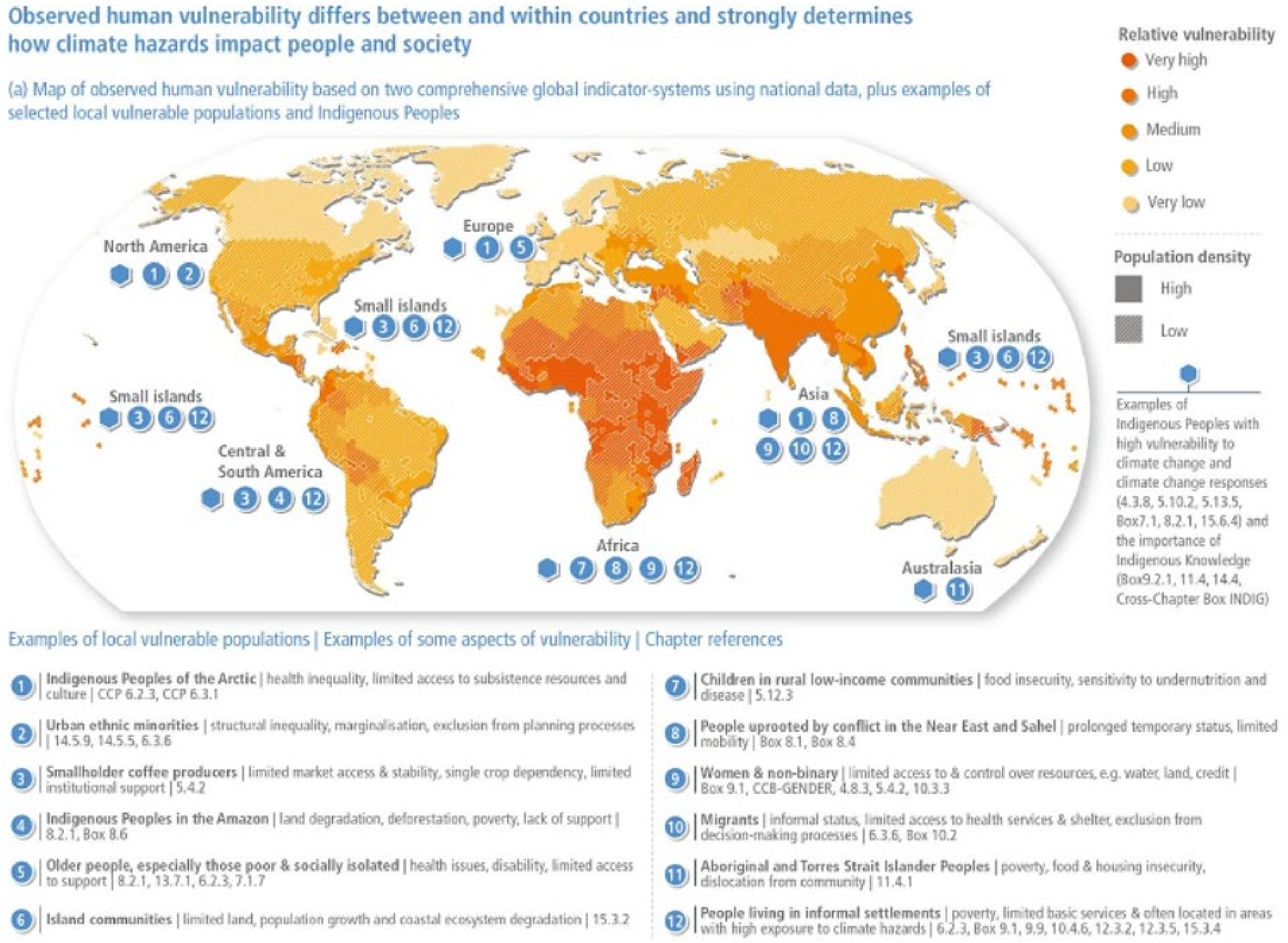
Locally grown in cold Sweden

No transportation

Fresh

”Rotating land”
Several floor = 8 times more land per m2

Optimal temperature, light, water, nutritions

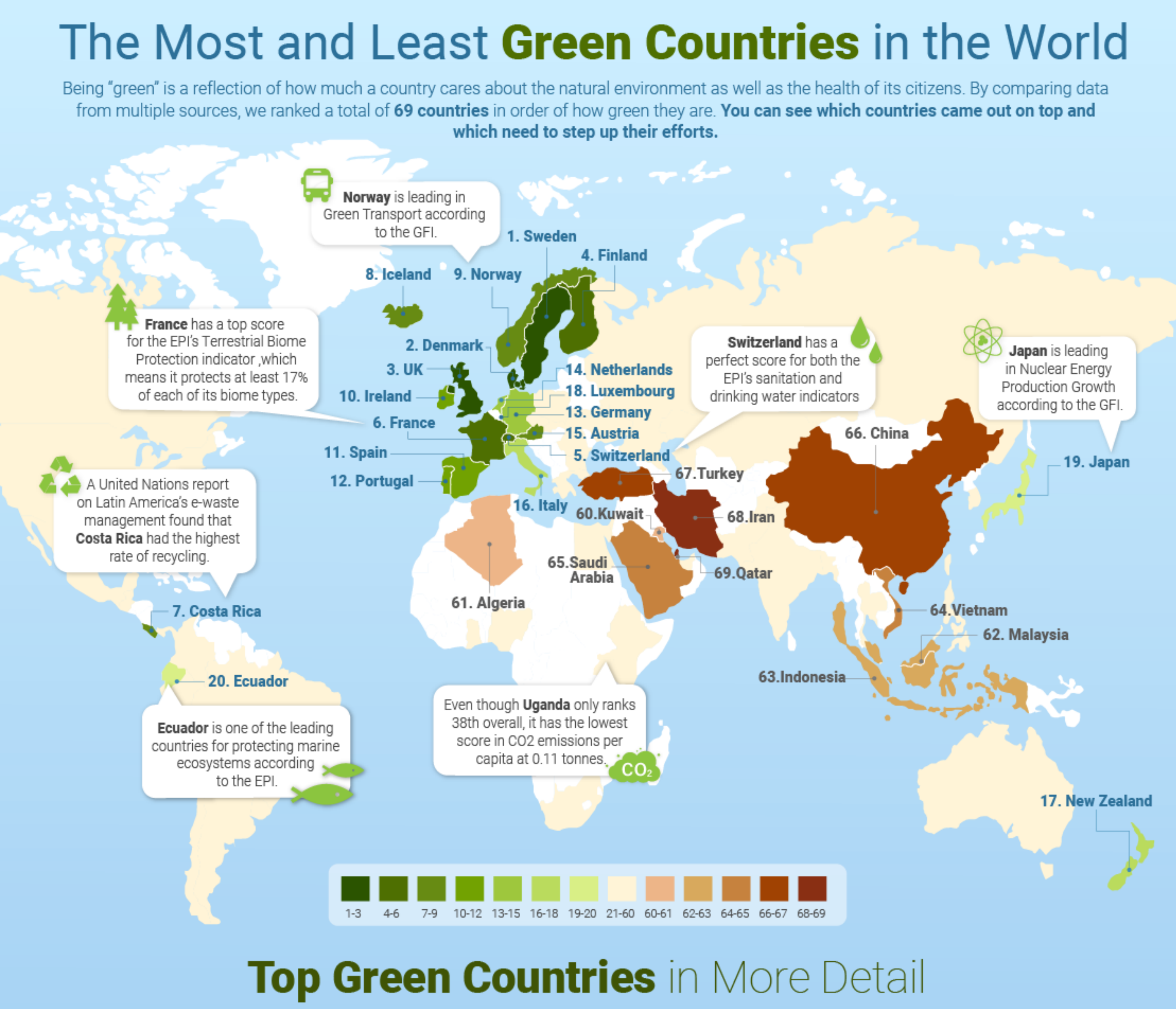


A draft map on observed human vulnerability which was deleted from the report's summary for policymakers. A similar map was published in the full report. (Source: Draft SPM IPCC Working Group II)

Which countries are 'particularly vulnerable' to climate change?

The European Union pushed to restrict loss and damage funds to "particularly vulnerable" nations, but the definition is still up for debate

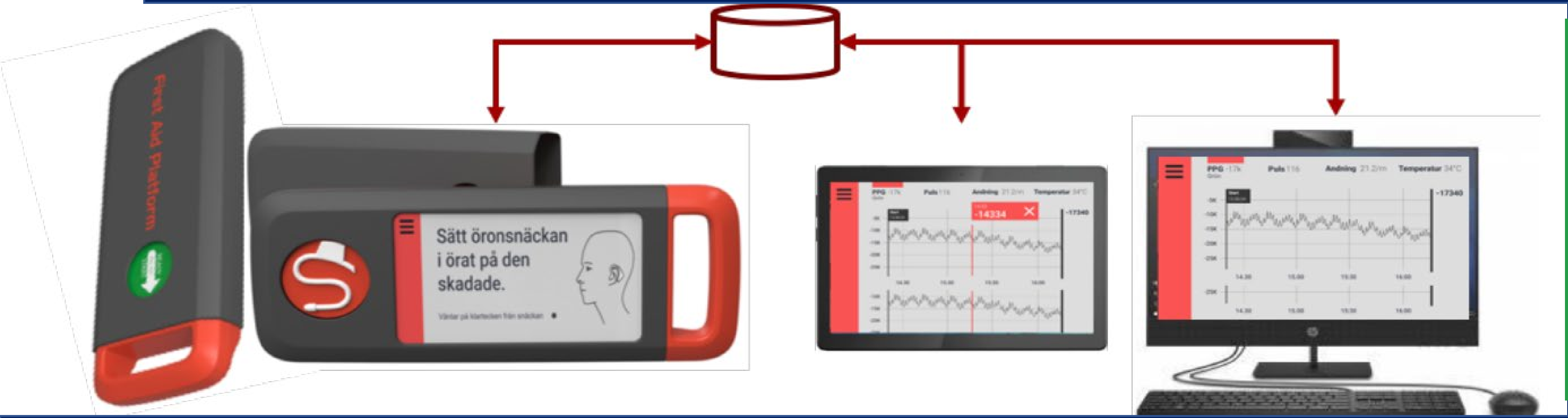
https://www.climatechangenews.com/2022/12/08/which-countries-are-particularly-vulnerable-to-climate-change/#:~:text=Climate%20change%20is%20felt%20by,to%20be%20the%20most%20vulnerable.



https://www.greenmatch.co.uk/blog/greenest-countries

Vital Signs: First Aid Platform (FAP)

Swedish innovation



Sensors applied to the individual transfer data directly to emergency care:

- Trauma
- Elderly
- Relatives
- Medical treatment follow up

Data such as: oxygen saturation, pulse and body temperature from the scene of the accident to the emergency healthcare

CEO: jens.ohlsson@vitalsigns.se

Substituting plastic with bio-material
Stora Enso innovations (Sweden-Finland)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Contact | Products | Sustainability | MAIN MENU

Latest innovations:

https://www.storaenso.com/en

Next generation eco-products to replace plastic

PureFiber™ by Stora Enso is a new selection of formed fiber products for single-use food packaging items such as plastic-free and PFAS-free cups, bowls and coffee cup lids as [illegible]s for non-food items.

A new eco-friendly material for folding cartons

Performa Light™ by Stora Enso is a plastic-free, lightweight and low carbon material for premium folding cartons. Performa Light™ can be used for chocolate boxes, confectionery packaging, cosmetics packaging and personal care

A food-safe kraftliner for corrugated packaging

AvantForte™ by Stora Enso is a 3-layer structured kraftliner for corrugated packaging, made from 100% virgin fibers. It meets brand owners' need for high-performing, safe and plastic-free packaging while using less material.

A renewable, fiber-based box for fresh berries

In Finland, fresh berries are an essential part of summer. Stora Enso introduced EcoFreshBox, a berry box made from corrugated board, to combat global plastic waste problem. The raw material of the box is made from sustainably

Our renewable products

Formed fiber

Biocomposites

Bio-based chemicals

Bio-based materials

Paperboard materials

Corrugated Packaging Solutions

Other packaging products

Wood foam

Get in touch

Sweden's most promising startups
74 new companies witin SustainTech
See https://sting.co/companies/

Greenworks

We improve the well-being of humans by bringing nature to them.

Incubate 2022

Parently

A circular subscription service for baby gear.

Accelerate 2022

myReload

An app that enables private individuals and companies to rent out their existing charging points for electric cars.

Incubate 2022

CUBO

Stores digital data in DNA.

Incubate Deeptech 2022

reCRQL

reCRQL

SaaS platform for the next generation of circular retail

MycoMine

Mycomine

Sustainable solution for breaking down chemical waste such as oils.

GORDIAN

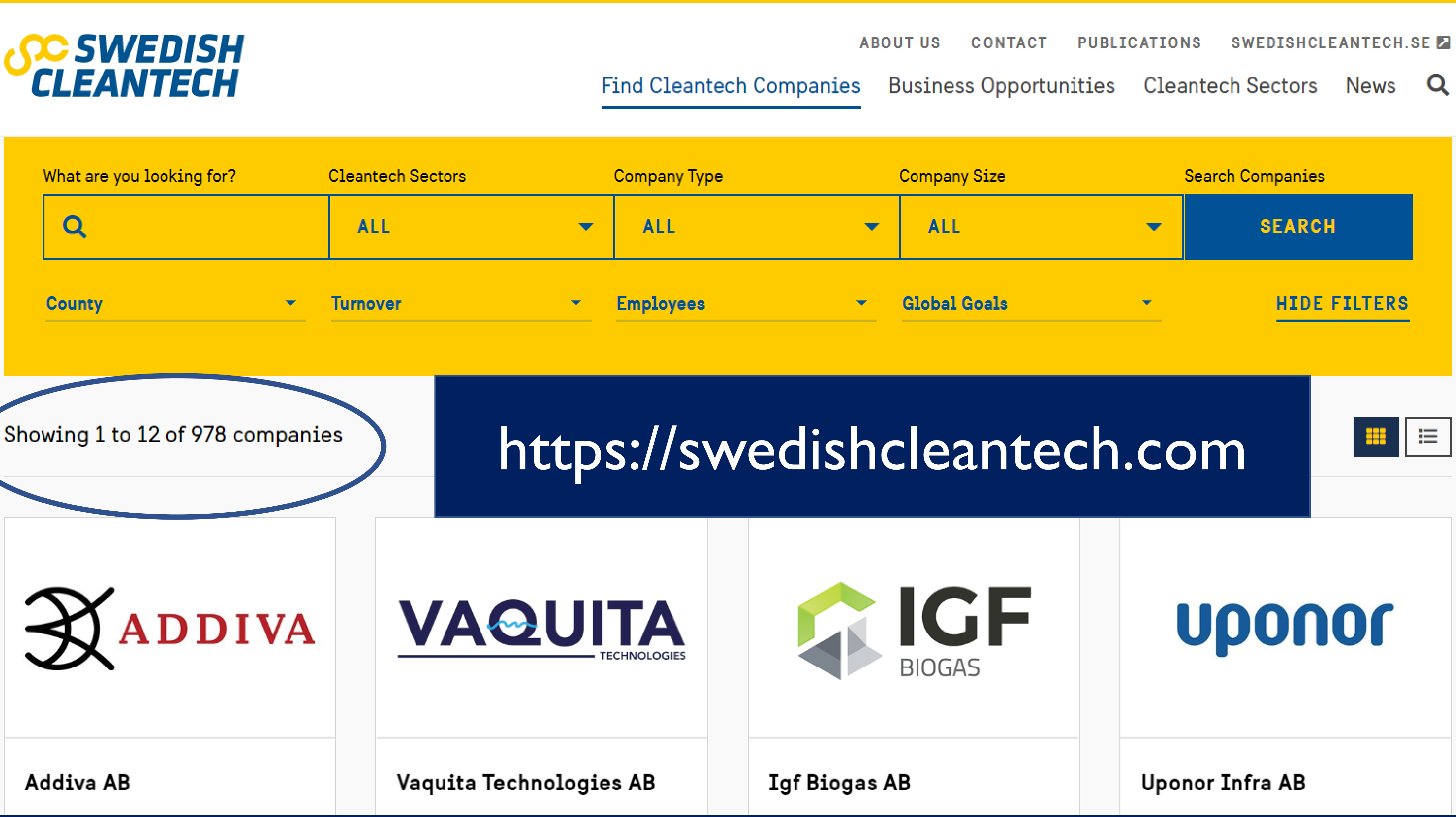
Gordian

Data-driven decision support for cost-effective and future-proof transport electrification

farm up

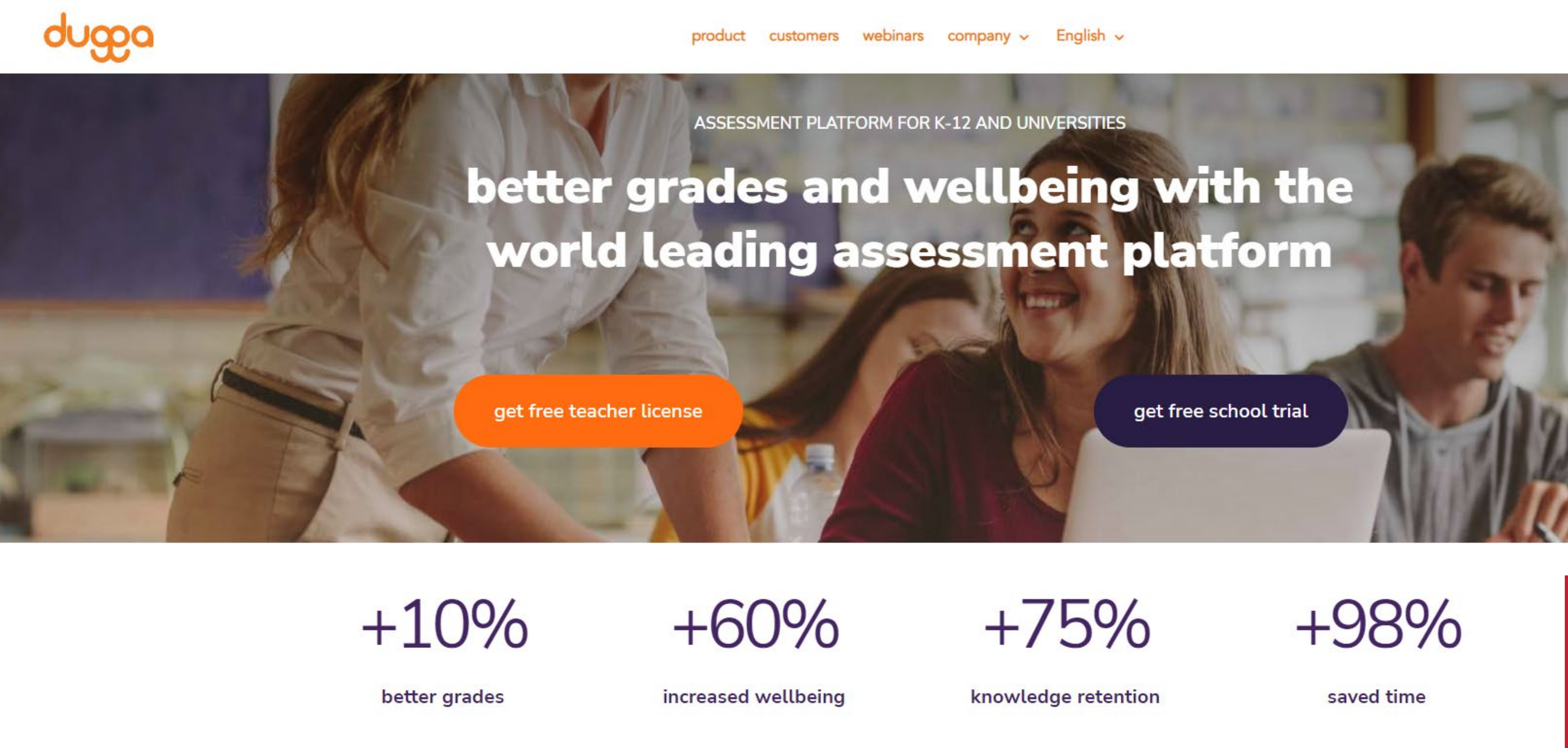
FarmUp

An app that makes it easy to buy and sell locally produced food



https://swedishcleantech.com

Digitalise the course examinations
Dugga Swedish EdTech innovation



4 QUALITY EDUCATION

CEO: Peter.wilcke@dugga.com

1.200.000

business

600,000 of these are limited companies

500.000

students

420,000 are university students and 80,000 study at universities of applied sciences in Sweden

16.000

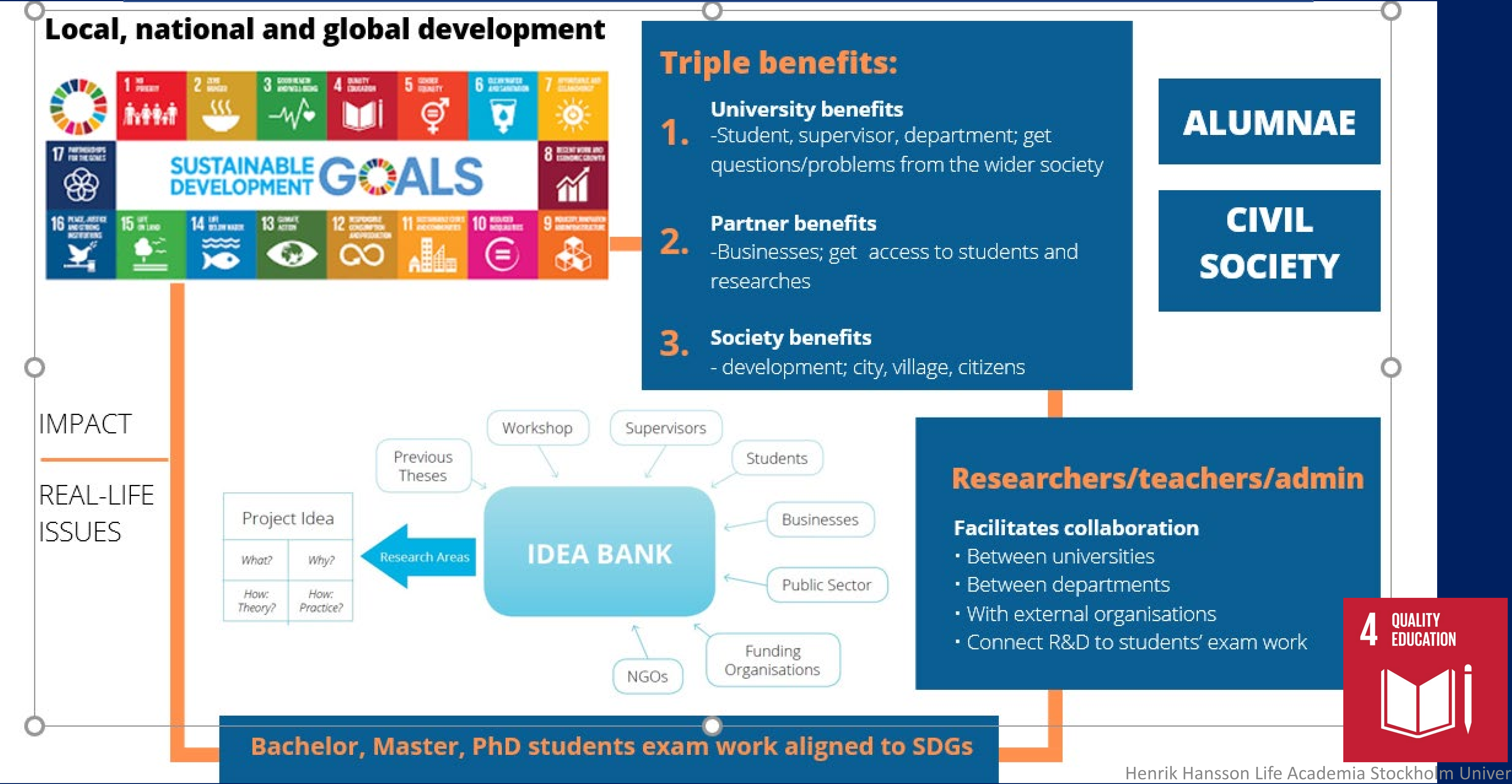
courses

Distributed among 16 universities, 31 colleges and 227 polytechnics

Connect student and company within 48 hours within the framework of a course

CEO: paola@bymatching.se

Digitalise the matching between stakeholders

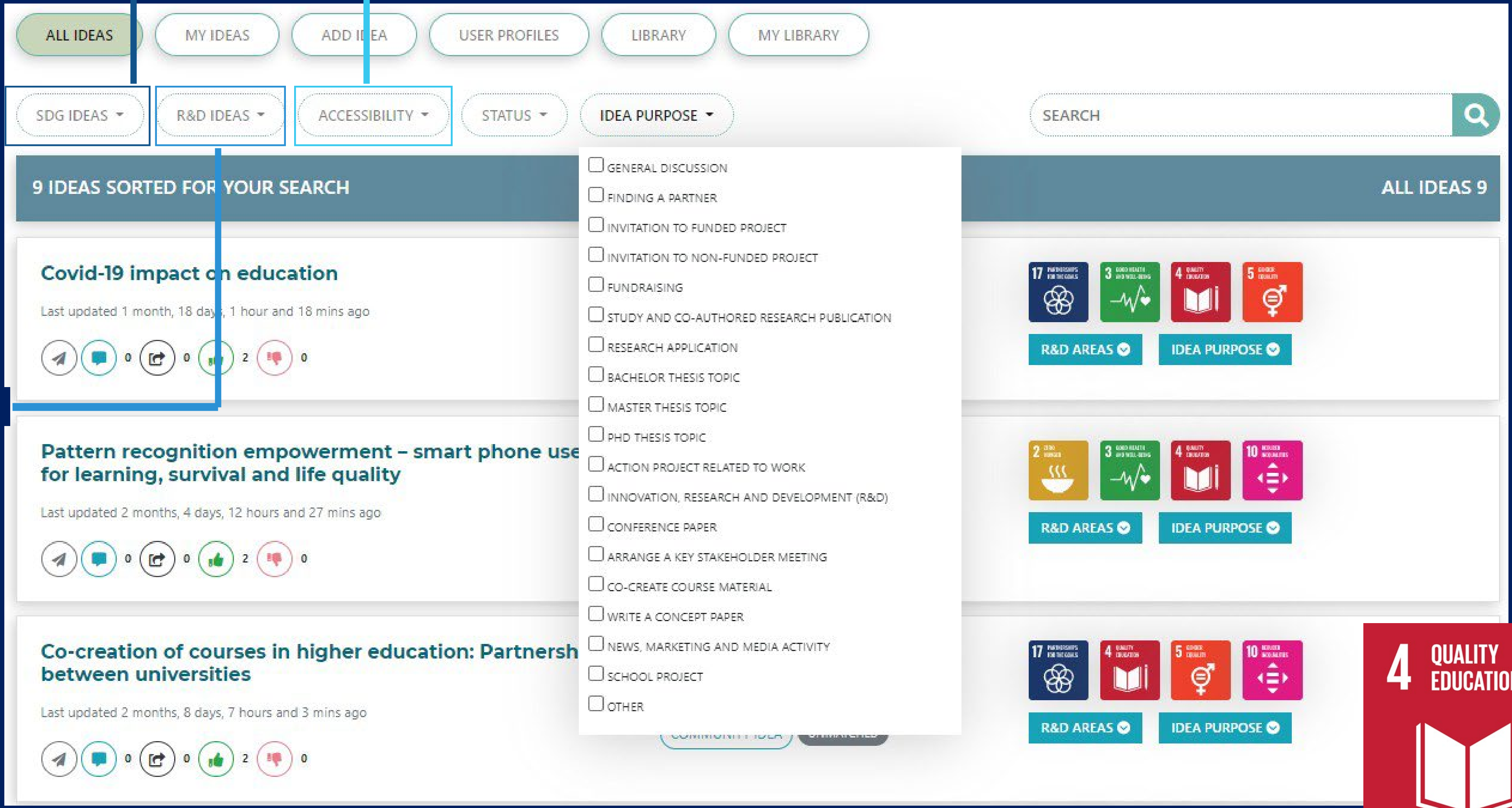


The Sustainability Portal
Swedish Edtech innovation

Search according to SDG

Filter for open or private idea

Search according to R&D



4 QUALITY EDUCATION

Henrik.Hansson@dsv.su.se

Citizen science

Each SDG is an R&D-Education area: *a community of interest*