Department of Environmental Science
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BONUS GO4BALTIC – Coherent policies and governanc of the Baltic Sea ecosystems

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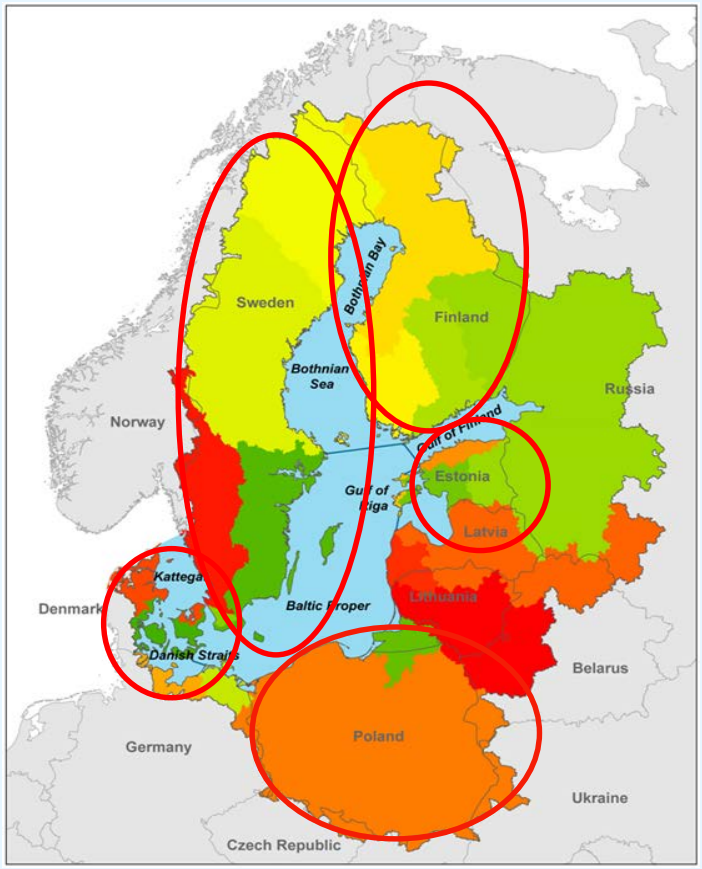
The presentation builds on inputs from the whole project and all partners in GO4BALTIC

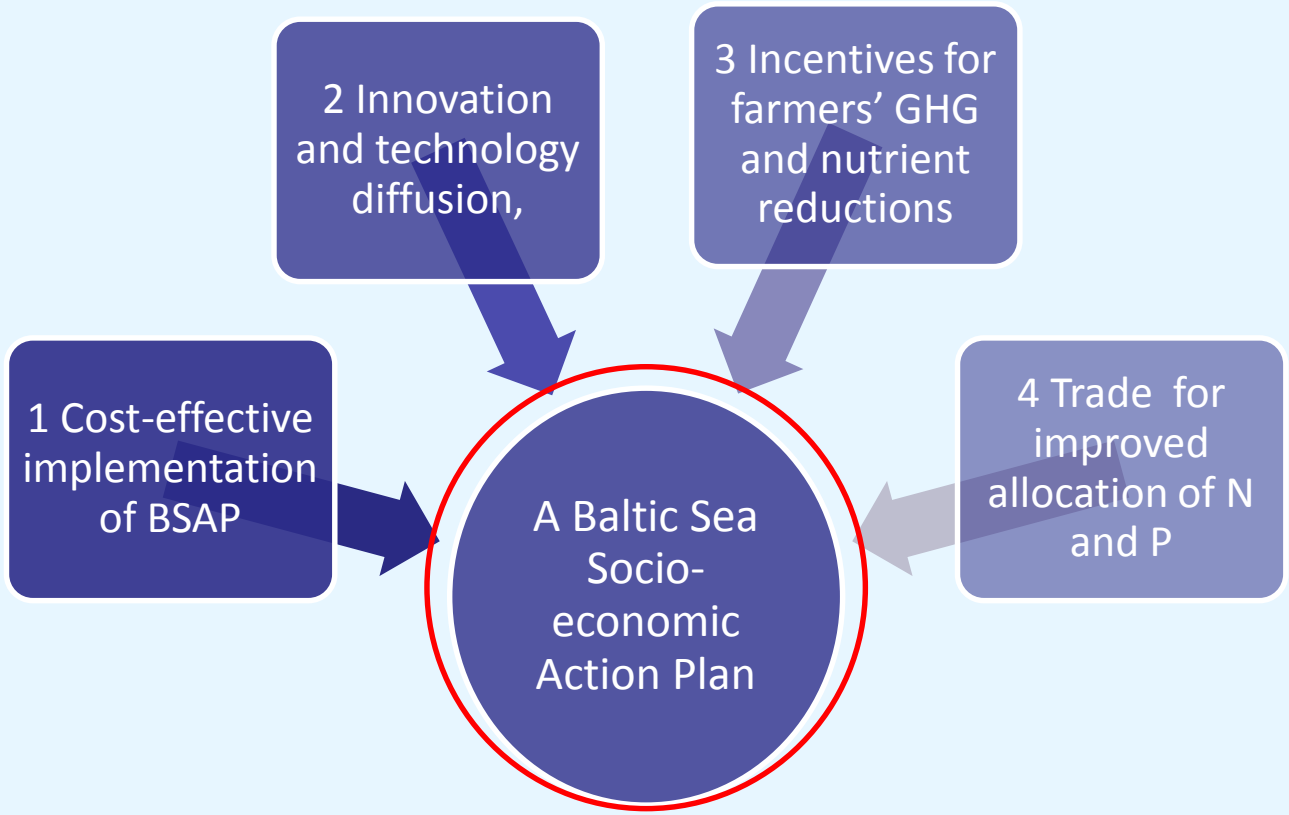
BONUS
SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION

Go4 Baltic

BONUS GO4BALTIC

- Examples of results and recommendations on
- Policies for cost-effecient nutrient abatement in the BS region
- Coherence and synergies with climate policies
- Five countries under study



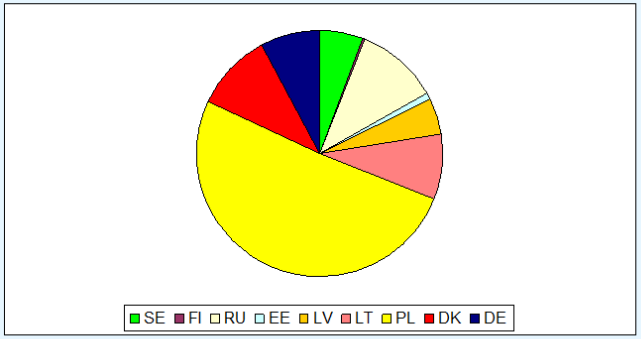


Recommendations for HELCOM

Cost-effective implementation

- Allocate smallest amount of resources to the pollution abatement, to achieve the target (e.g. BSAP targets on nutrient load reductions).
- Many abaters, spread around the Baltic sea. How can the target be shared?

Figure 3: Distribution between countries of the total annual costs of delivering the nutrient reduction targets of Table 5 using the lowest cost combination of drainage basin-specific abatement measures.



- Cost-effeciency:
- To achieve least cost solutions the marginal costs equalised over all abaters.
- When it is more costly for abater X than abater Y at the margin – it is effecient to move abatement from X to Y until the marginal abatement cost is equal.

Results and recommendations #1

- Fulfilling BSAP is costly for all countries around the Baltic. Climate mitigation is also costly, and agriculture contributes to both.
- All countries have signed up to international agreements (BSAP nutrient load reductions, climate mitigation):
- Combined N and P reductions reduce costs by 20% compared to individual implementation (Gren & Elofsson, 2017).
- Combined implementation of nutrient and climate policies reduces costs by 35% compared to individual implementation (Nainggolan et al 2018).


Marine Policy

Credit stacking in nutrient trading markets for the Baltic Sea


Ecological Economics

Water Quality Management and Climate Change Mitigation: Cost-effectiveness of Joint Implementation in the Baltic Sea Region

Innovation and technology

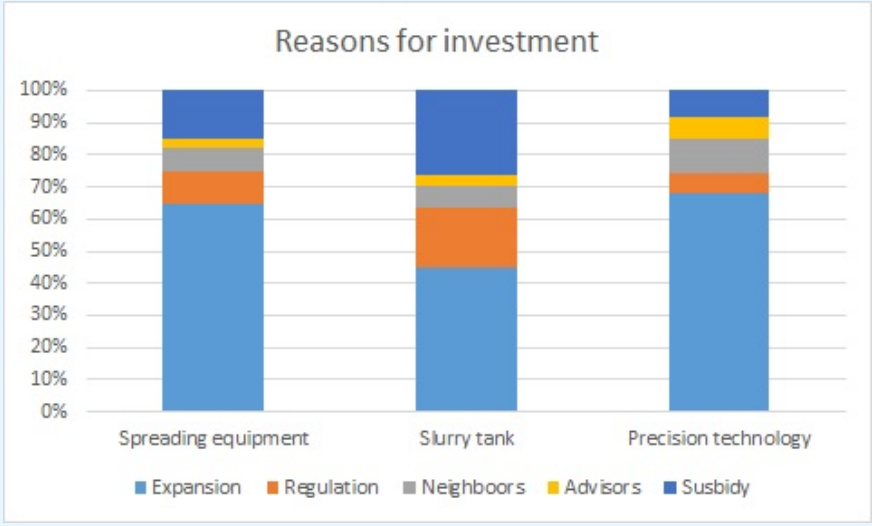
- Incentives to innovate, use novel technologies
- Swedish patent data over a 50-year period: increased regulation induced innovation in the wastewater treatment sector
- Short-run effect was estimated to 40-70% in the years after the introduction of new environmental regulations.
- A corresponding effect could not be identified in the agricultural sector. Difference in policy design:
- In the wastewater sector performance standards are used, setting limits on emissions.
- Agriulture: design standards, specific technologies required and subsidized.

Results and recommendations #2

- Farm survey data from GO4BALTIC on farmers adoption of technologies – reasons for investments analysed.

Expansion main reason;

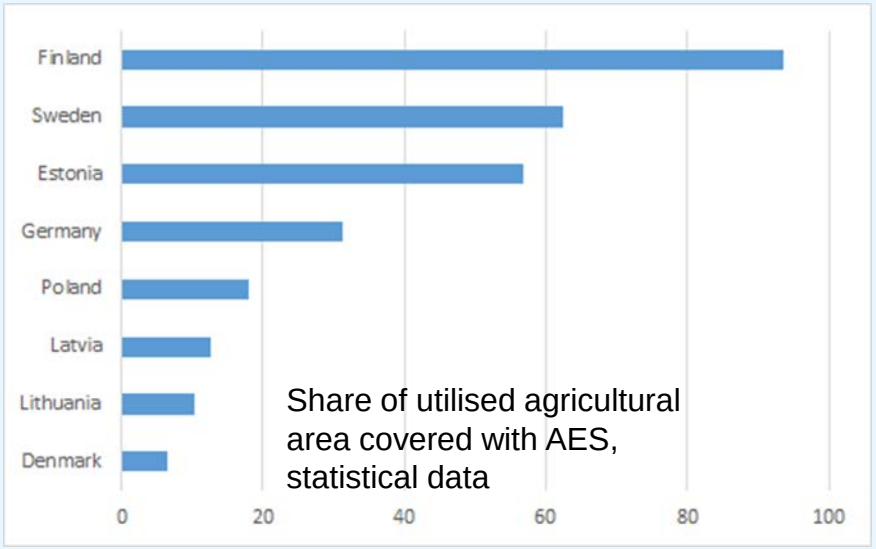
regulation and subsidy to a less extent.

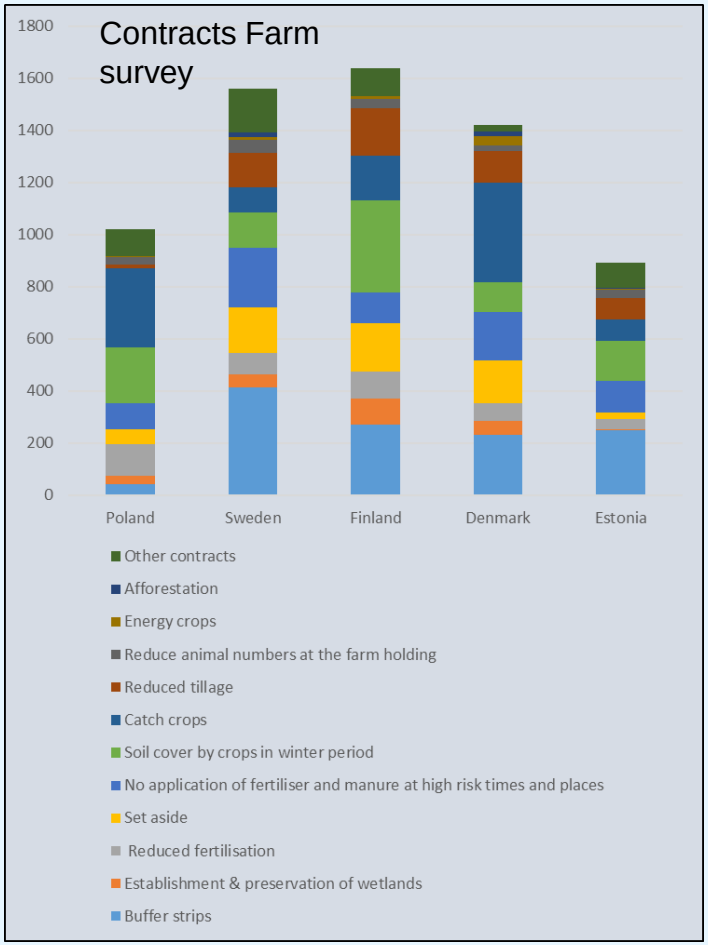


- We suggest use of emission performance standards for larger farms in order to encourage innovative activity.
- Replace current EU and national regulations for agri-environmental measures, by performance standards that allows farmers to apply novel technologies.

Incentives for farmers, AES

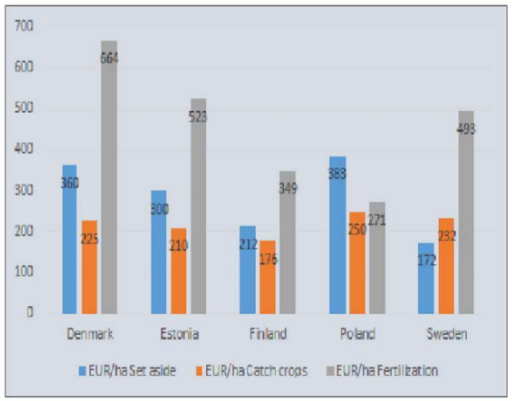
- Survey of 2439 farmers in 2017,
- Five countries. Incentives to adopt Agri-environmental schemes analysed.
- Relevance: CAP post 2020





Results and recommendations #3

- Minimum willingness to accept (WTA) levels for adoption of AES.
- These results vary substantially between countries.
- Farmers prefer shorter contracts and contracts that require enrolling lower areas of land.



Farm type, farm size, country of origin have effects as well.

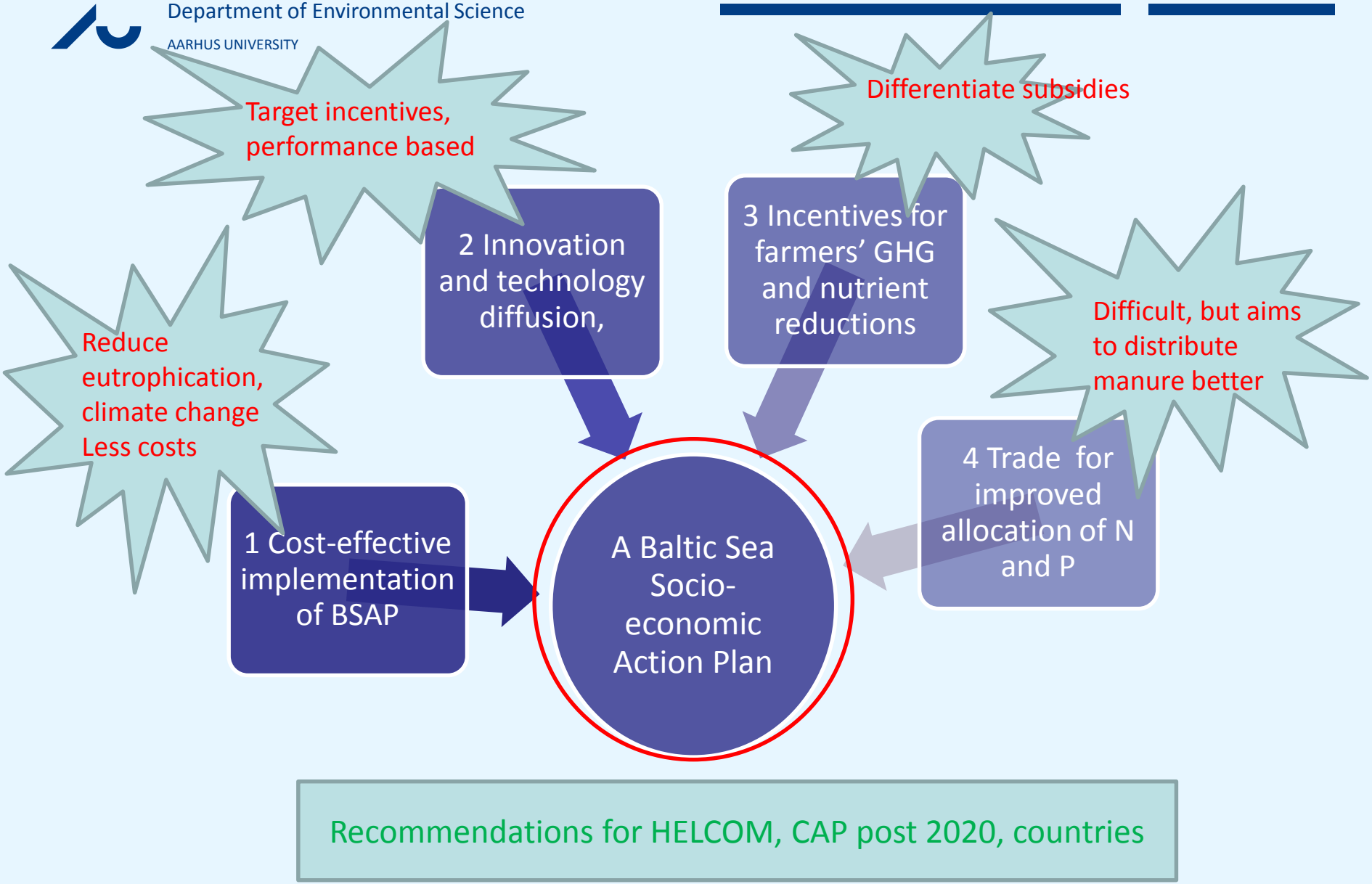
- Differentiated contracts will have a higher probability of participation than uniform payment schemes. Results supports the ongoing CAP 2020 revision.

Trading water quality and/or nutrients

- Large heterogeneities in costs of abatement across polluters: opportunities for implementing economic instruments for water quality management.
- Examples: Trade of manure, trading water quality requirements.
- Water quality trading scheme: cost-effective policy mechanism with reliable target achievement.
- Few schemes have been implemented in practice and even fewer successes have been reported.

Results and recommendations#4

- Cost-effective, but heterogeneity between farmers /abaters necessary for trade
- Farm characteristics influence the decision on supply/purchase of nitrogen abatement, as well as the amounts being traded. Farmers trade, but there are barriers. Might be uncertainty.
- Citizens and experts prefer direct regulation and agri-environmental subsidies to nutrient trading. For experts', nutrient trading is unlikely to deliver sufficiently large cost savings to be preferred to other instrument types. This potentially explains the low take-up of water quality trading schemes outside the United States.
- Still interesting from economic point of view!



Recommendations for HELCOM, CAP post 2020, countries

Acknowledgements

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