IPS Project
Peat for Food and Quality of Life

Part 3: Identification of potential peat resources to cover future demand

Msc. Int. Satoka Tamaki - Dipl. Geogr. Bernd Hofer

Introduction: The Project

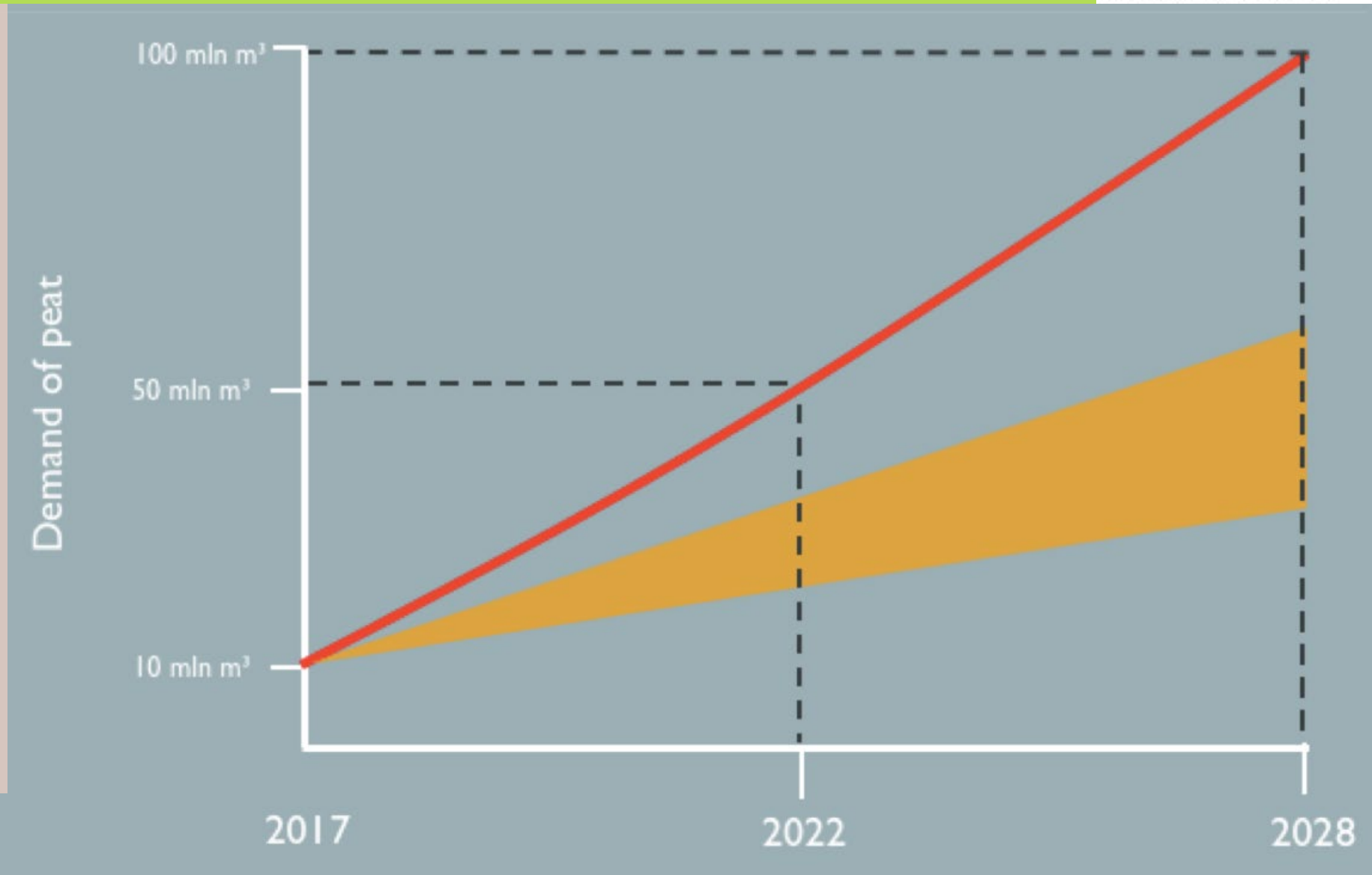
Part 1: Development of the demand for peat in China until 2050,
J. Derks & W. Yang Schoemaker, Uni Groningen

Part 2: The world´s need for growing media 2020-2050
Chris Block, Wageningen UR

Part 3: Identification of potential peat resources to cover future demand, S. Tamaki & B. Hofer

Introduction: Results of Part 1

But for different reasons like infrastructure the announced speed of development seems not to be realistic but nether the less will be remarkable at the global market.



Introduction: Results of Part 2

The world's need for growing media

Reflections on peat use for food and quality of life in the period 2020-2050

2018 09 11, IPS congress, Chris Blok, many others, Wageningen University & Research

WAGENINGEN UR
For quality of life

Overview

- A Why soilless cultivation?
- B What volumes are we talking ab
- C Prognosis to 2050

Introduction: Results of Part 2

Estimation is based on future world population development.

In 2050 10 billion of people will ask for more ornamentals, fruits and vegetables produced by horticulture industry.

Change of ratio to more renewable constituents like wood fibre, compost, coir or new materials (paludiculture) and increasing application of new technologies (hydroculture) taken into account, there is still a significant increasing demand for peat.

Introduction: The Question

Current global peat extraction for horticultural use is around 40 million m^3 annually.

In the future, peat demand is expected to increase to 80 million m^3 annually.

The Question

Will sufficient peat resources to supply such demand become **available**?

Definitions

Available peat reserves and resources for horticulture

Peatlands

Reserves 0.04%

Peat reserves currently used for horticultural peat extraction

Peat reserves currently used for fuel peat extraction

Potential Resources

Potential Peat resources

- low conservation value

- classified as degraded

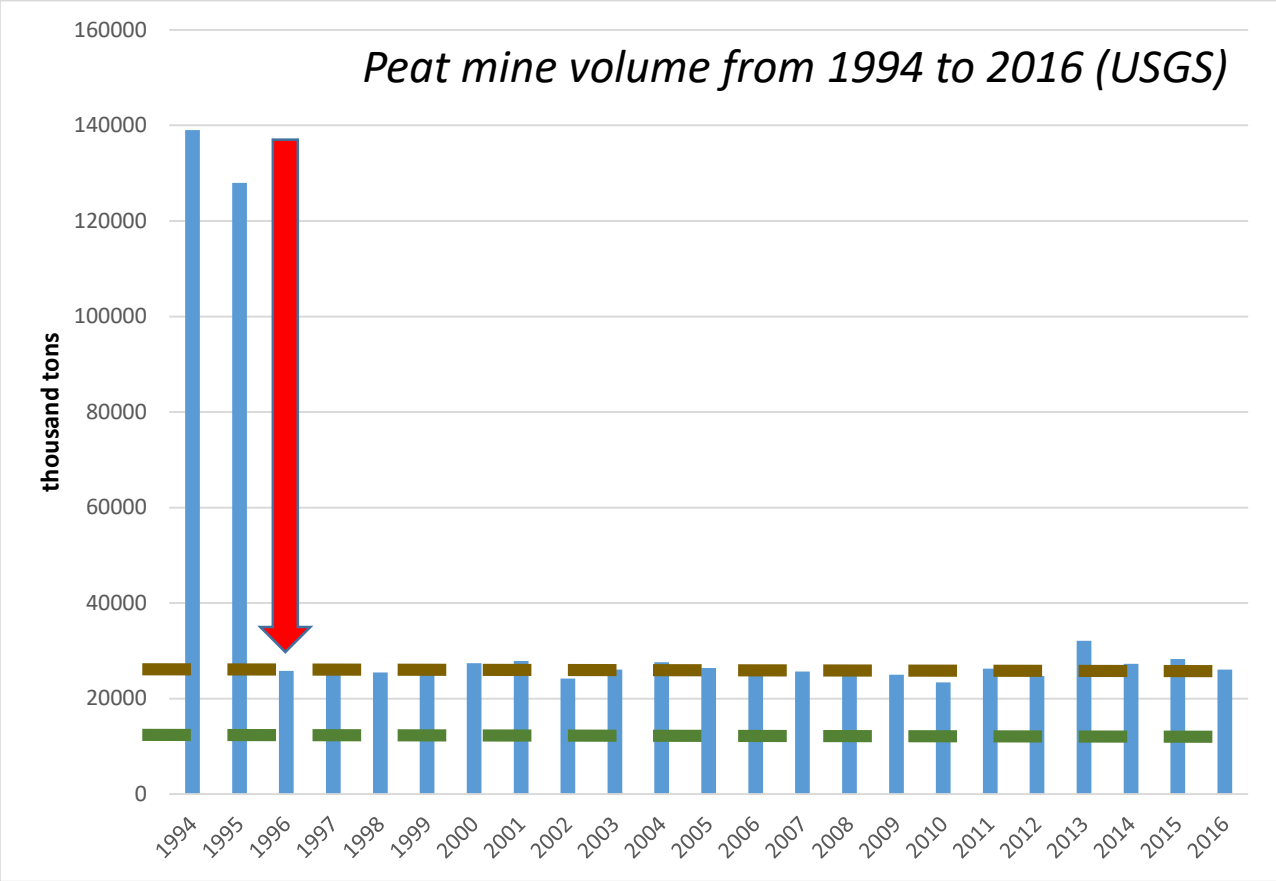
- already classified as extraction priority area

Potential Peat resources in undisturbed peatlands

Under condition of IPS “Wise use of peatlands” and “Strategy of Responsible Peatland Management”

Status quo

World Peat extraction

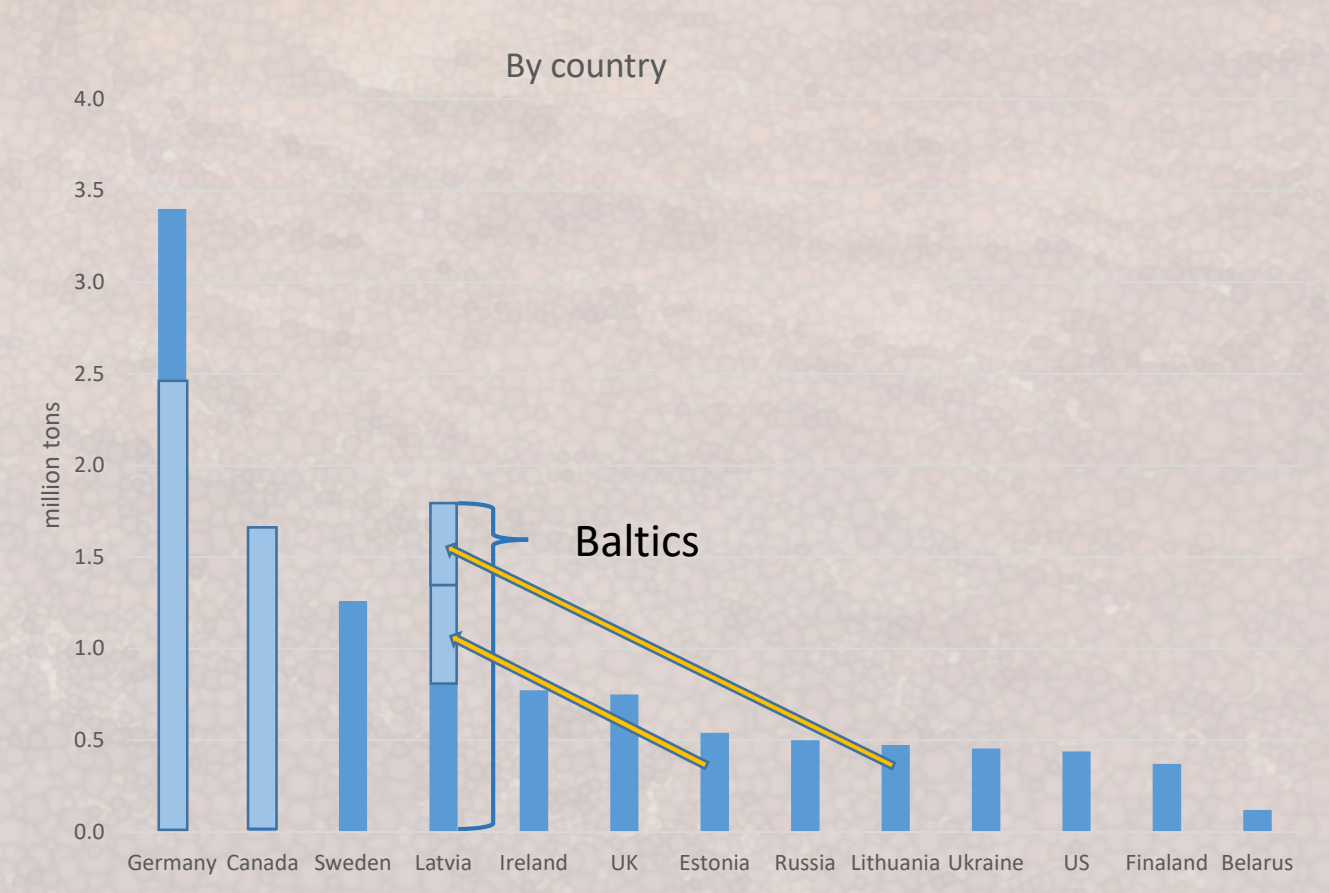


- Average of 25 million tons = 100 million m^3 per year
- ~ 40 million m^3 for horticultural peat
- Mine production “collapsed” from over 500 million m^3 to around 100 million m^3 after Soviet Union dissolution

Data: USGS, 2018

Status quo

Peat extraction for horticulture by country



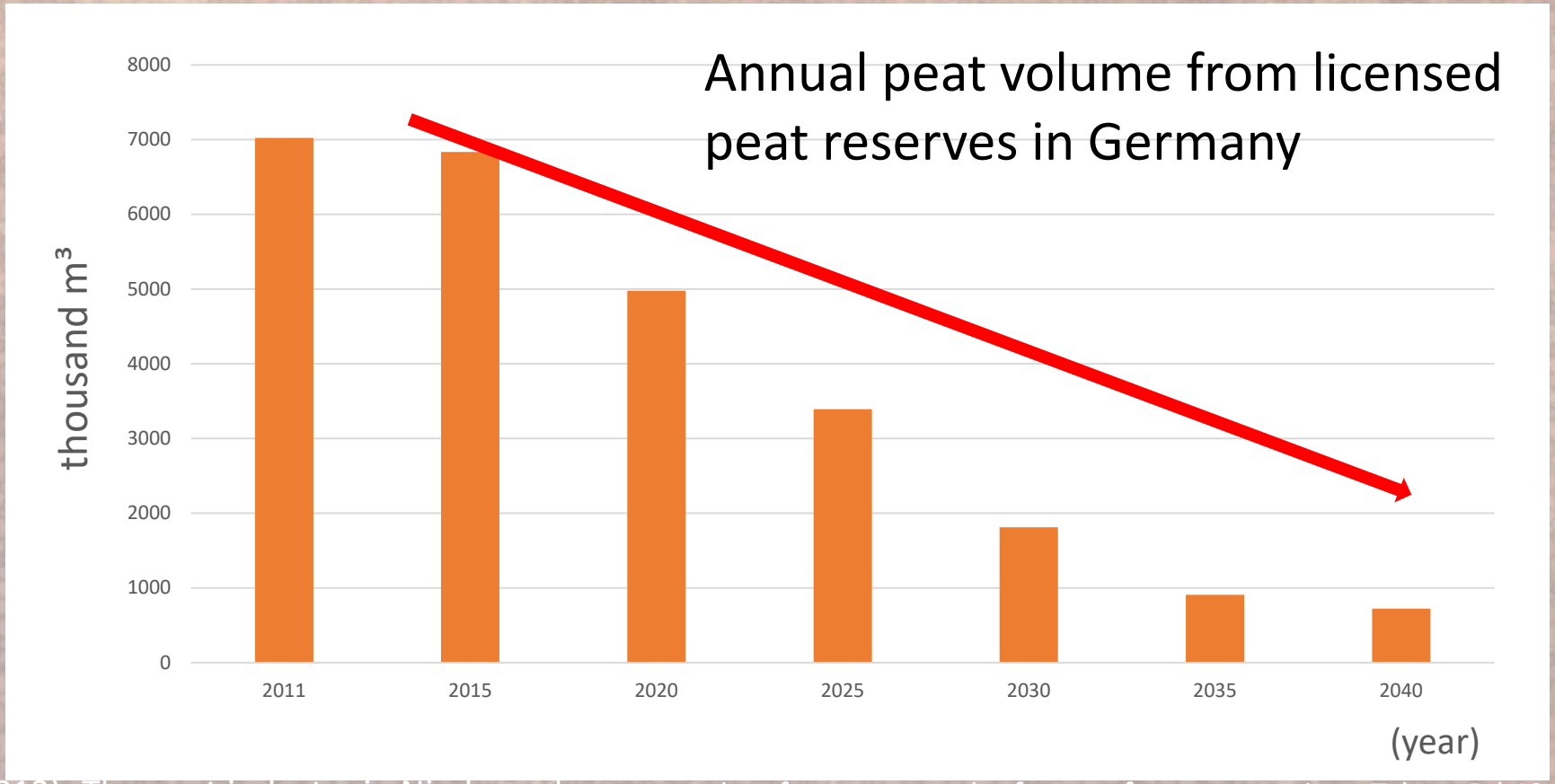
- Most important players to supply growing media industry with peat
- Next to Germany the Baltic states are supplier with increasing importance
- Canada is most important to supply the North American market

Data: USGS, 2018

Peat reserves (e.g. Germany)

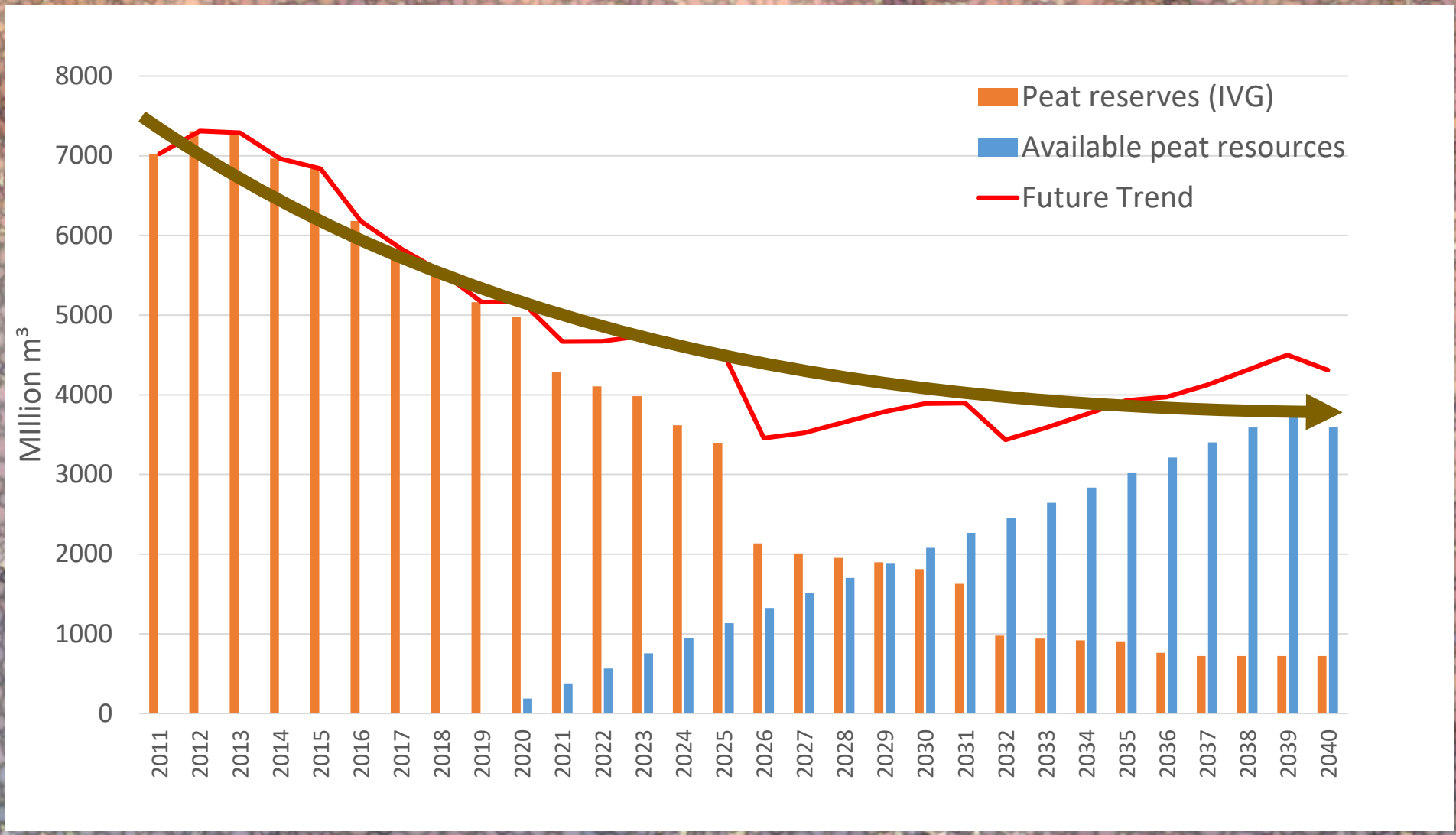
Peat reserve reduction is to be expected due to

Example Germany (data from IVG)



Schmatzler (2012): The peat industry in Niedersachsen – results of a survey on the future of peat extraction , Telma, Bd 42, P. 27-42, Hannover

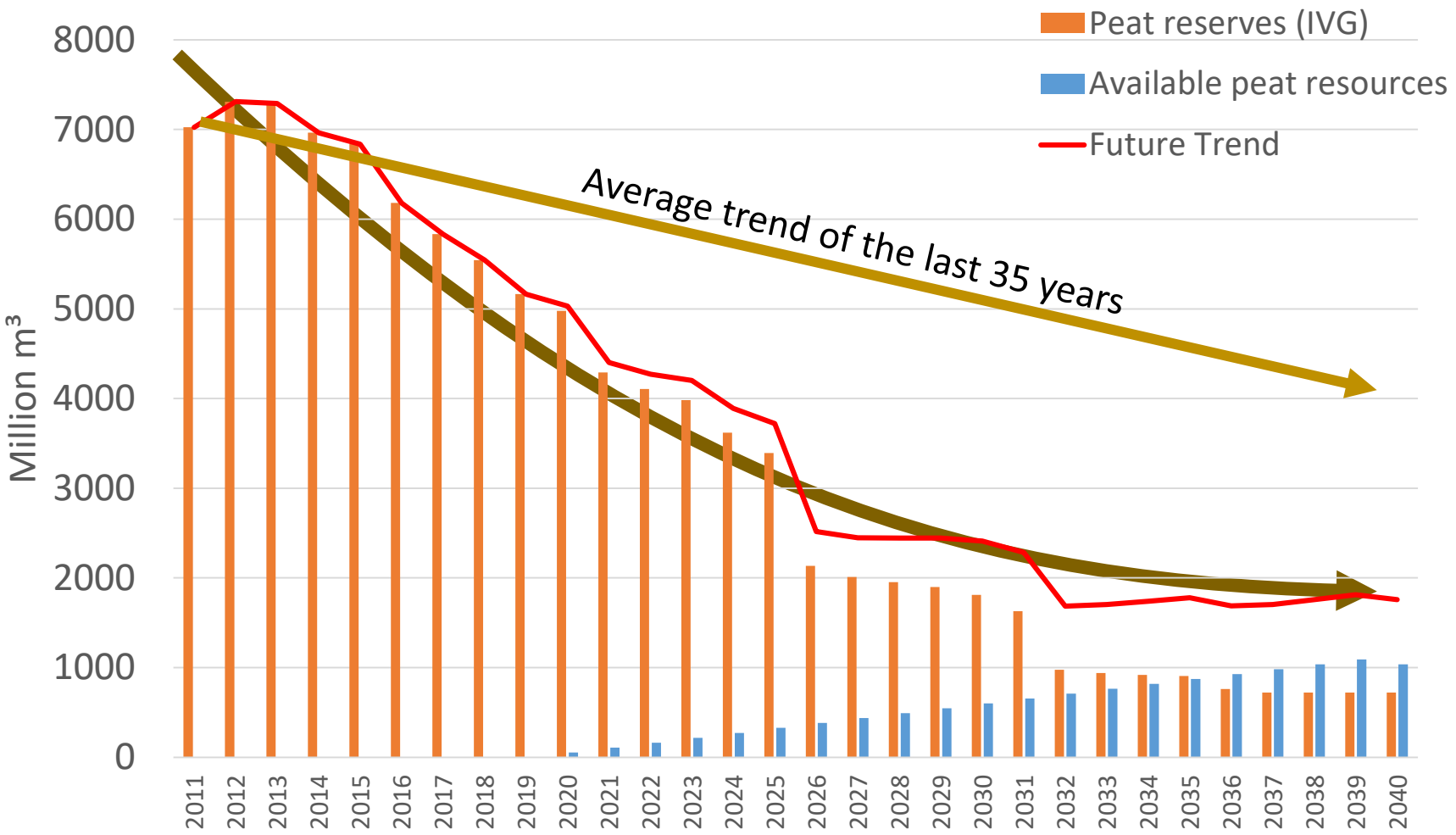
Peat resources – Germany best case



80% of priority areas for peat extraction

10% of unclassified peatlands ("white areas")

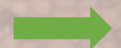
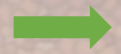
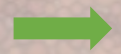
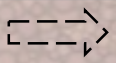
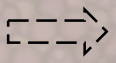
Peat resources – Germany worst case



50% of priority areas for peat extraction

1% of unclassified peatlands (“white areas”)

Survey to IPS NCs

Country	2017	2020	2030	2050		Future scenario by IPS NCs	Remarks
US	0.44	0.44	0.44	0.44		Maintain status quo	Import from Canada
Canada	1.67	1.70	1.8	1.9		Slightly increase specific states	
UK	0.75	N/A	N/A	N/A		Maintain status quo or decrease	License expira[illegible]n
Germany	3.4	3.4	1.0	0.6		Decrease	[illegible]
Lithuania	0.55	1	1	1		Maintain status quo	[illegible]ficult
Estonia	0.75	N/A	N/A	N/A		Slightl[illegible]	[illegible]eat quota, priority area
Latvia	0.85	1.2	1.2	1.0			New license is difficult, inventory
Finland	4.14	2.32	[illegible]			[illegible]y increase	Degraded area classification
Ireland	4.3					Decrease	Terminates peat production
Sweden	2.1	1	[illegible]	0.25		Increase or Decrease	Degraded area classification
Russia	1	N/A	N/A	N/A		Not known	Rewetting project
Ukraine	0.57	2.0	2.5	N/A		Increase	Strategy up to 2030
Belarus	1.62	7.5	N/A	N/A		Increase	Slightly increase every year

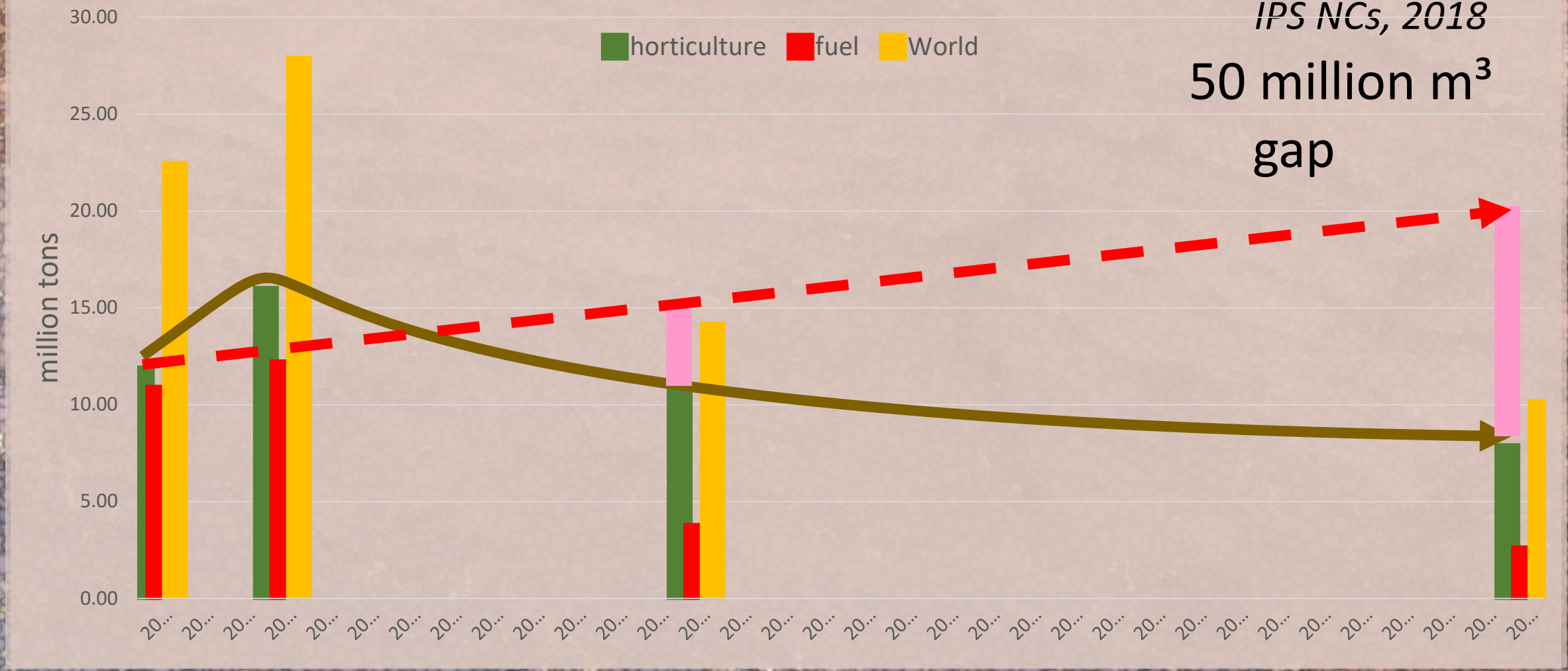
Includes all aspects and factors

Peat resources - availability

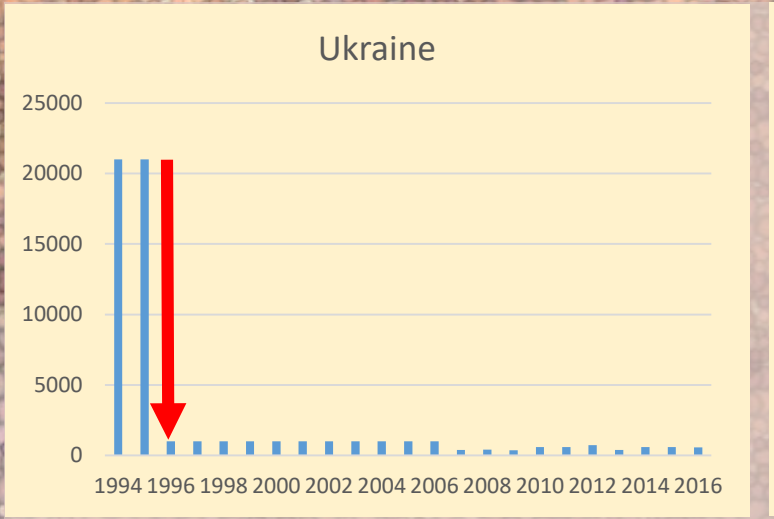
Peat resources availability is limited by:

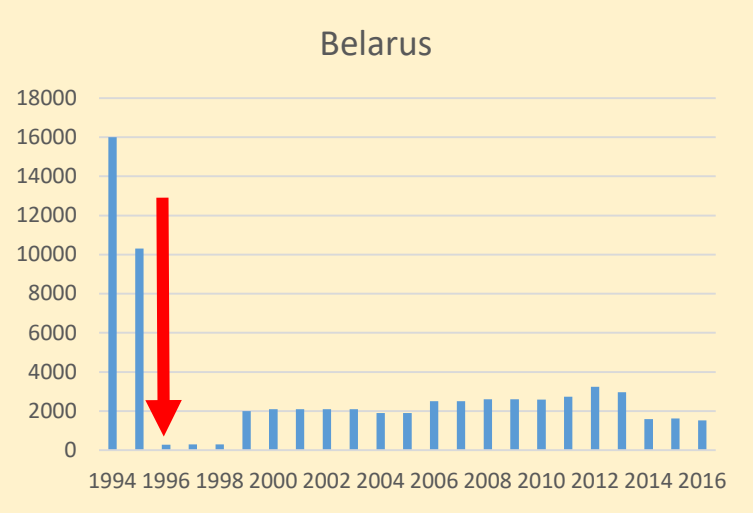
- Economic factors like transport distances or lacking infrastructure or peat quality
- Ecological values, nature and climate protection
- Political decisions / spatial planning
- Negative decisions of licensing procedures

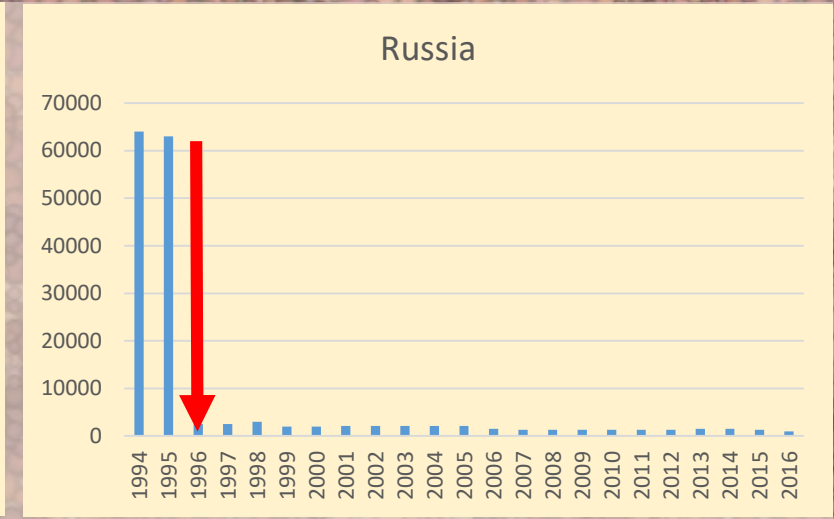
Future peat demand estimation



Potential Resources from abandoned peatlands







minus 20 million t / a

minus 12 million t / a

minus 60 million t / a

total decline 92 million t / a

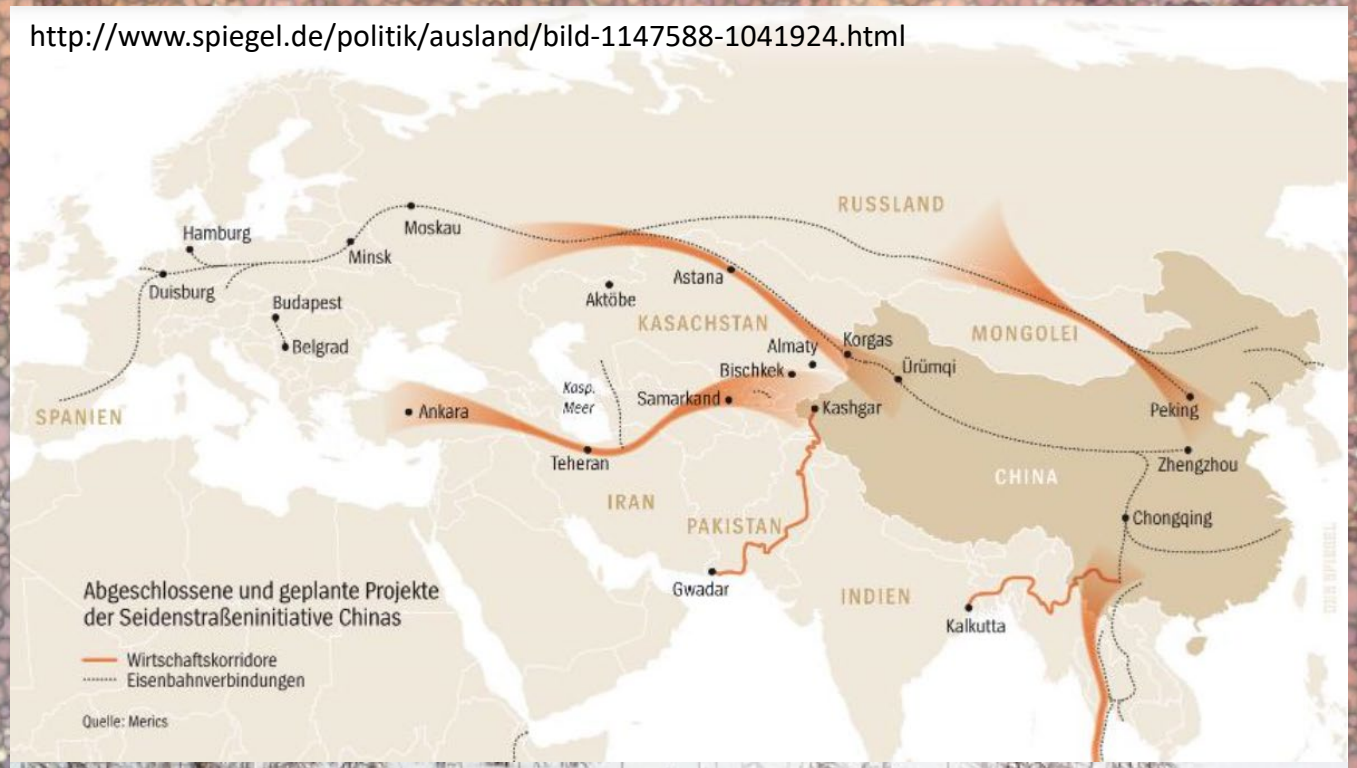
more than 250* million m³ / a

** lower conversion factor because of higher weight of fuel peat*

Data: USGS, 2018

Potential Resources from abandoned peatlands

http://www.spiegel.de/politik/ausland/bild-1147588-1041924.html



A Decision Support System for degraded abandoned peatlands illustrated by reference to peatlands of the Russian Federation

Система поддержки принятия решений в отношении деградировавших заброшенных торфяников на примере торфяников в Российской Федерации

Project Partners: Wetlands International; Институт лесоведения Российской академии наук; Ernst Moritz Arndt Universität Greifswald

Sponsored by: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; Programmbüro Internationale Klimaschutzinitiative; giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

- the peat is ≥1.2 m thick
- the area with ≥ 1.2 m peat depth is > 40 ha in extent
- the peat has the adequate quality
- access to the consumer can be achieved

Potential Resources - potential annual volumes

Country	parameter	Volume / a	Data availability
Estonia	NC estimation	7.0 mio m^3	Spatial planning / NC
Germany	5% „white areas“, 65% priority areas	2.0 mio m^3	Spatial plannings - estimation
Russia	10% of former production	18.0 mio m^3	Degraded and abandoned peatlands
Ukraine	Governmental strategy	6.0 mio m^3	Degraded, abandoned area – quality?
Belarus	10% of former production	3.6 mio m^3	Degraded and abandoned area
Latvia	17.5% of abundaned peatlands	1.7 mio m^3	Degraded and abandoned area
Lithuania	NC estimation	1.4 mio m^3	Degraded and abandoned area
Finland	NC estimation	2.8 mio m^3	From degraded areas
Canada	NC estimation	3.6 mio m^3	certification and special restoration
Sweden	NC estimation	0.4 mio m^3	Degraded and abandoned peatlands
total	**conservative estimation**	**31.3 mio m^3 / a**	**plus abandoned resources**
	NC estimation	**15.2 mio m^3 / a**	**from reserves and recources**

Potential Resources – shift from fuel peat

Available peat reserves and resources for horticulture

Peatlands

Reserves

Peat reserves currently used for horticultural peat extraction

Peat reserves currently used for fuel peat extraction

Resources

Potential Peat resources

- low conservation value
- classified as degraded
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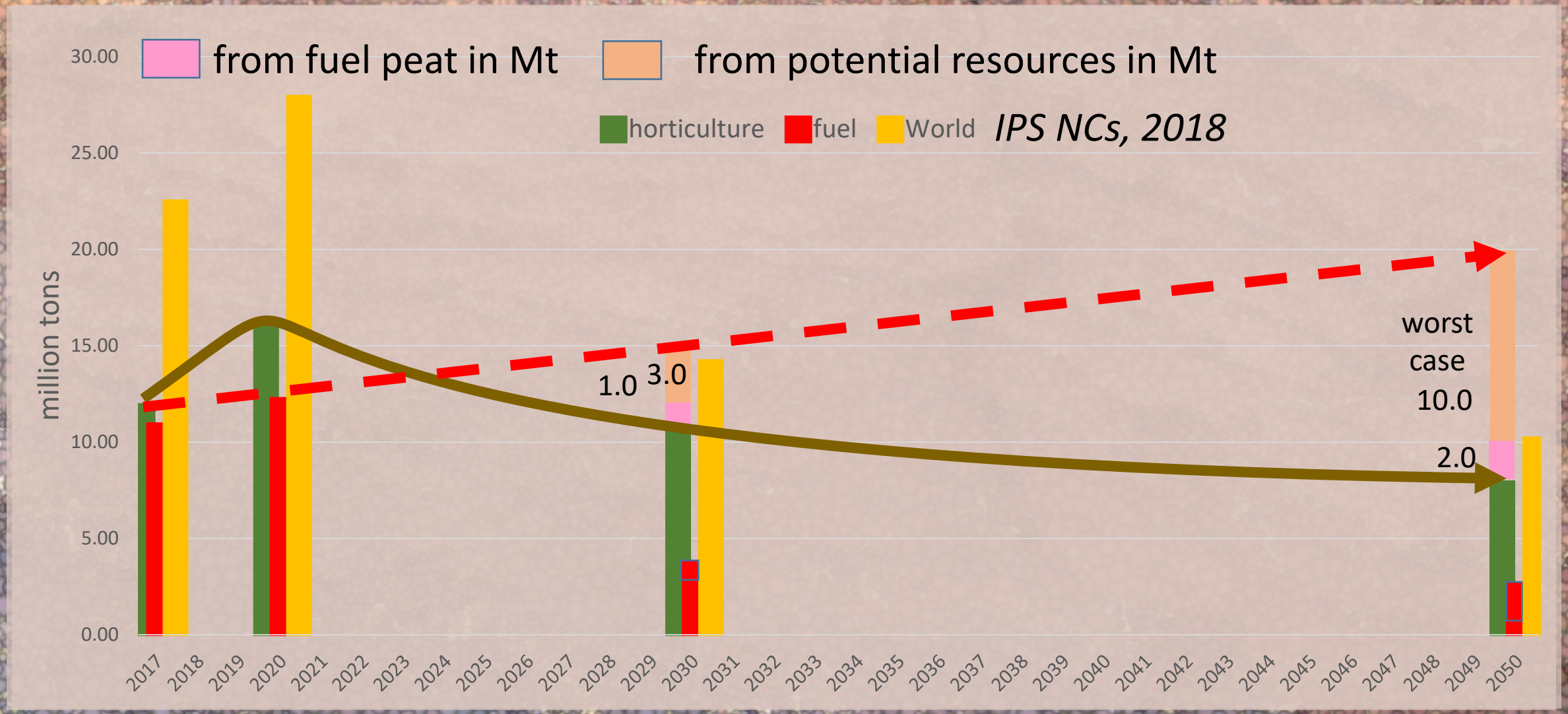
Potential Peat resources in undisturbed peatlands

Under condition of IPS “Wise use of peatlands” and “Strategy of Responsible Peatland Management”

Future peat demand estimation



Future global peat reserves

3 million t to be developed in 10 years time

= 9 million m^3 in 10 years (1:3 because of higher decomposition degree)

Ø extraction depth of 2.5 cm / a

36,000 ha are requested for 9 million m^3 extraction volume

= 3,600 ha are annualy to be developed

= 1.8% of current global extraction area (200,000 ha)

Conclusions

The Question

Will sufficient peat resources to supply future demand become available?

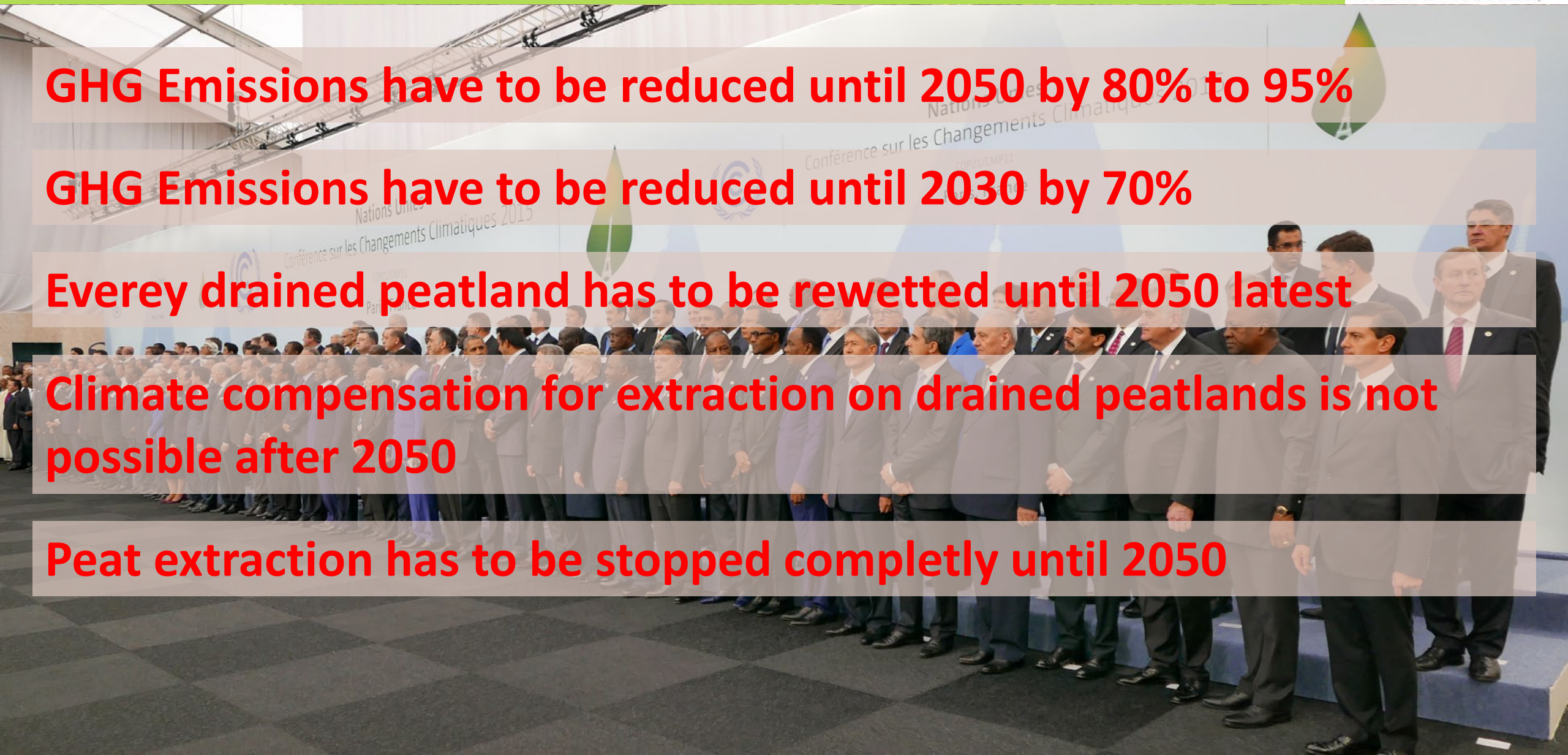
The Answer

Sufficient additional peat resources **can** be made available from three sources:

1. Peat currently used for energy generation
2. Peat from degraded/abandoned soils (including RPP classes 3 and 4 and Succow Foundation/Joosten decision support for Russia)
3. *Resources from undisturbed peatlands (including Veriflora)*

But will it happen?

Conclusion of Paris Agreement



GHG Emissions have to be reduced until 2050 by 80% to 95%

GHG Emissions have to be reduced until 2030 by 70%

Everey drained peatland has to be rewetted until 2050 latest

Climate compensation for extraction on drained peatlands is not possible after 2050

Peat extraction has to be stopped completly until 2050

Conflict to Paris Agreement

ELECTRIC POWER — 10 Oct 2018 | 14:59 UTC — London

EU ministers agree 35% CO2 cut for new cars by

IPCC reaction

During opening statements and throughout the day's talks, the Intergovernmental Panel on Climate Change's (IPCC) landmark report was an ever-present force in the Council room, as countries advocating higher targets urged their colleagues to heed its stark warnings.

'UNREALISTIC'

The German car industry viewed the 35% target as "unrealistic" both on a technical and an economic level, Bernhard Mattes, president of national automaker association VDA, said Wednesday.

Author **Henry Edwardes Evans** **Andreas Franke**

Editor **Jonathan Loades Carter**

Commodity **Electric Power**

Conflict to Paris Agreement

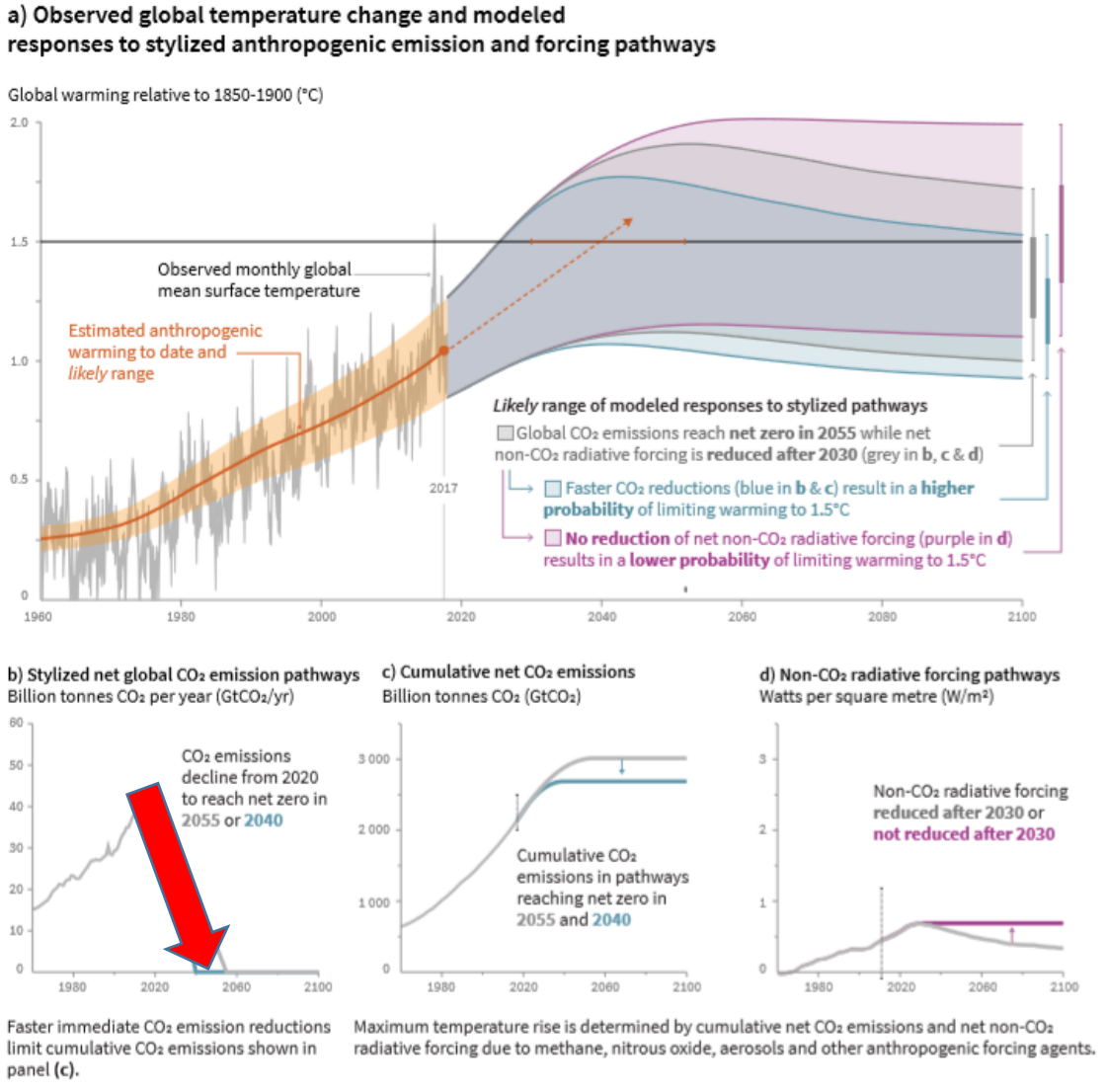
IPCC Special Report 15 – Summary for Policymakers, 6 October 2018

D. Strengthening the Global Response in the Context of Sustainable Development and Efforts to Eradicate Poverty

D1. Avoiding overshoot and reliance on future large-scale deployment of carbon dioxide removal (CDR) can only be achieved if global CO_2 emissions start to decline well before 2030 (high confidence).

D7.1. **Partnerships involving non-state public and private actors**, institutional investors, the banking system, civil society and scientific institutions would facilitate actions and responses consistent with limiting global warming to 1.5°C (very high confidence).

Cumulative emissions of CO_2 and future non-CO_2 radiative forcing determine the probability of limiting warming to 1.5°C



Conclusions

The Proposal

- Mix of constituents with the lowest emissions by keeping necessary quality standards
- Peat from certified extraction sites with minimum GHG-emissions and “wet” after use
- Dialogue with administration, eNGOs, policy, society at local, national and global level on a base of scientific facts