UNECE

Food and Agriculture Organization of the United Nations

UNECE/FAO Forestry and Timber Section

Forest Sector Outlook Studies

FORESTS

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18 September 2019, Zvolen, Slovakia

Agenda

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1. UNECE/FAO Forestry and Timber Section
2. Forest Sector Outlook Studies
3. Current work for the next outlook study
4. The World in 2050

1. UNECE/FAO Forestry and Timber Section

Economic Commission for Europe

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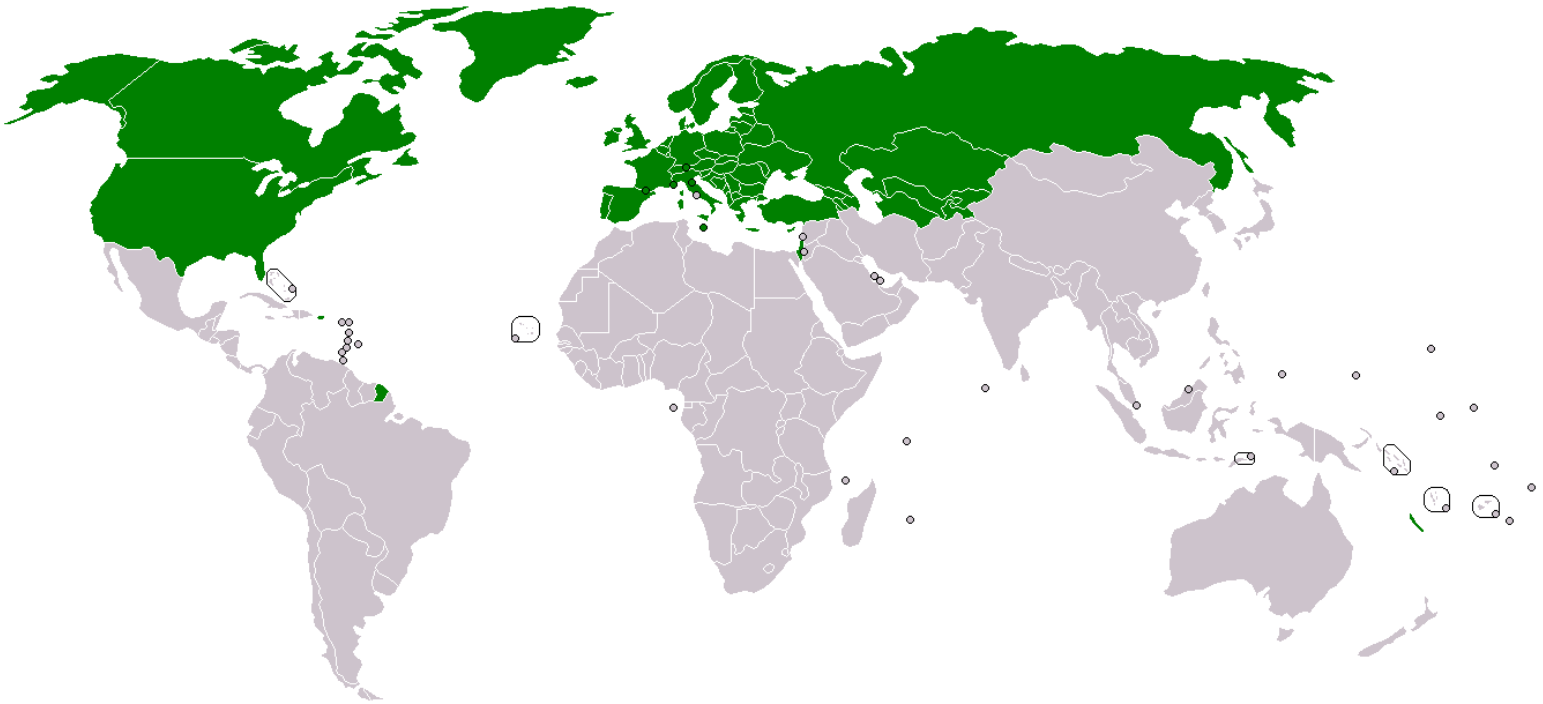
… was established in 1947

… is one of five UN regional commissions

… facilitates **greater economic integration and cooperation** among its **56 member States**



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Collaboration with FAO

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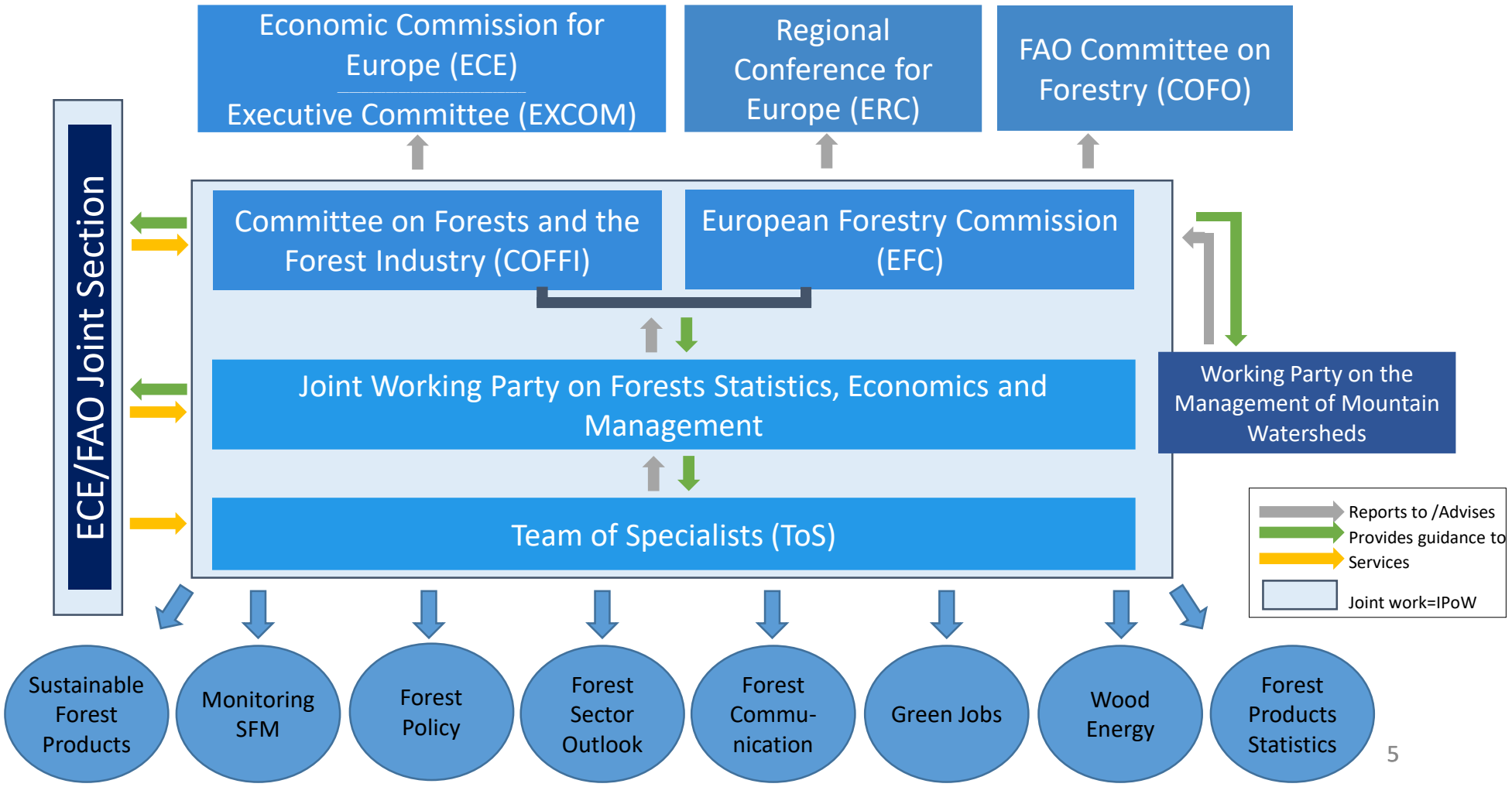
Governance structure for the Integrated Programme of Work



Forestry and Timber Section

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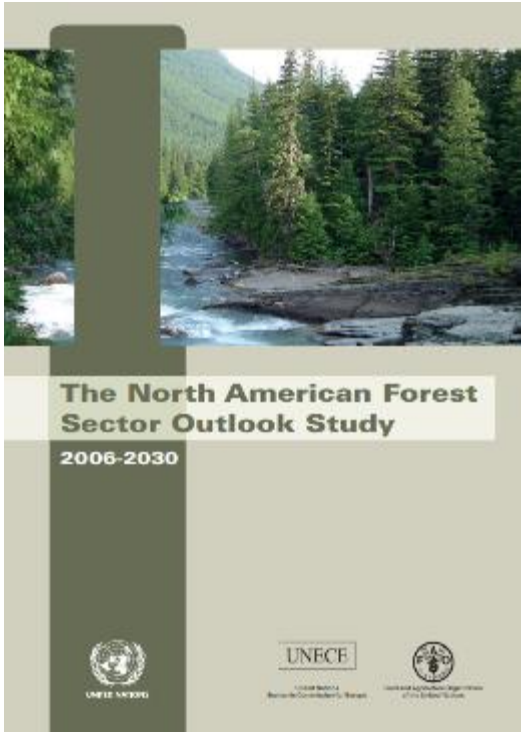
Working Areas:

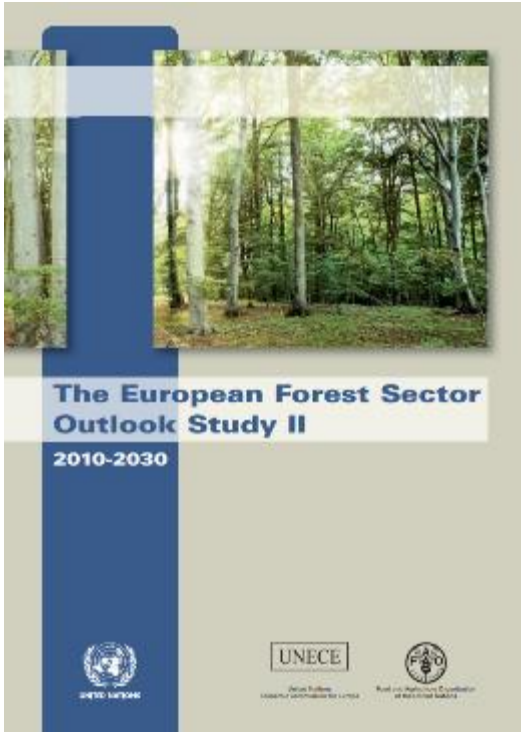
WA1	• data, monitoring and assessment
WA2	• policy dialogue and advice
WA3	• communication and outreach
WA4	• capacity building

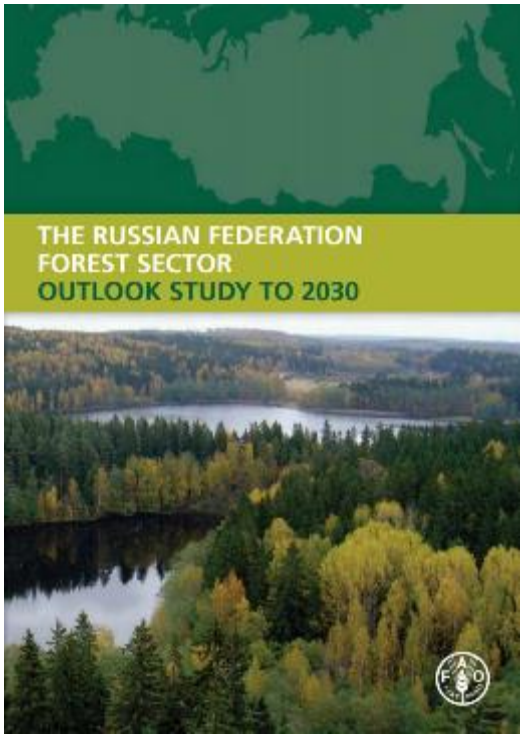
Publication and Studies

2. Forest Sector Outlook Studies

Last round of outlook studies







EFSOS II - Scenarios

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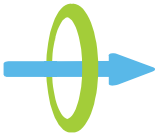
- **Reference Scenario**
  - *What if we continue business as usual?*



- **Maximizing Biomass Carbon**
  - *How much carbon could be stored?*

- **Priority to Biodiversity**
  - *What if we focus on preserving /enhancing biodiversity?*

- **Promoting Wood Energy**
  - *How to achieve the renewable energy targets?*

- **Fostering innovation/Competitiveness**
  - *What would a successful innovation strategy lead to?*

Example wood engery scenario

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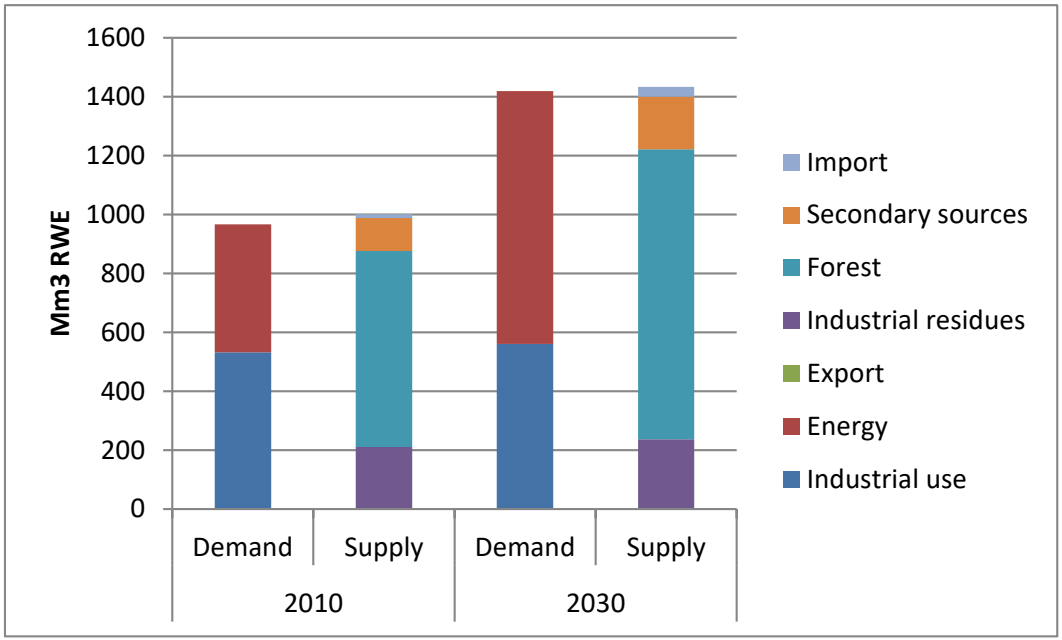
Promoting wood energy

- **Assumes:** EU 2020 targets, 20% renewables and +20% efficiency, are met, and trends continue to 2030
- **To reach the targets, supply** would have to increase by **50%** by 2030
- Significant environmental, financial and institutional costs.



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3. Current work for the next outlook study

Process

Rough roadmap for the next FSOS

2018

01/2018: Brainstorming workshop

03/2018: Proposal development ToS Meeting Working Party

After WP: Modelling of prioritized scenarios

10/2018: ToS Teleconference Feedback on Modelling Afterwards: continuation of work and preparation of background paper

2019

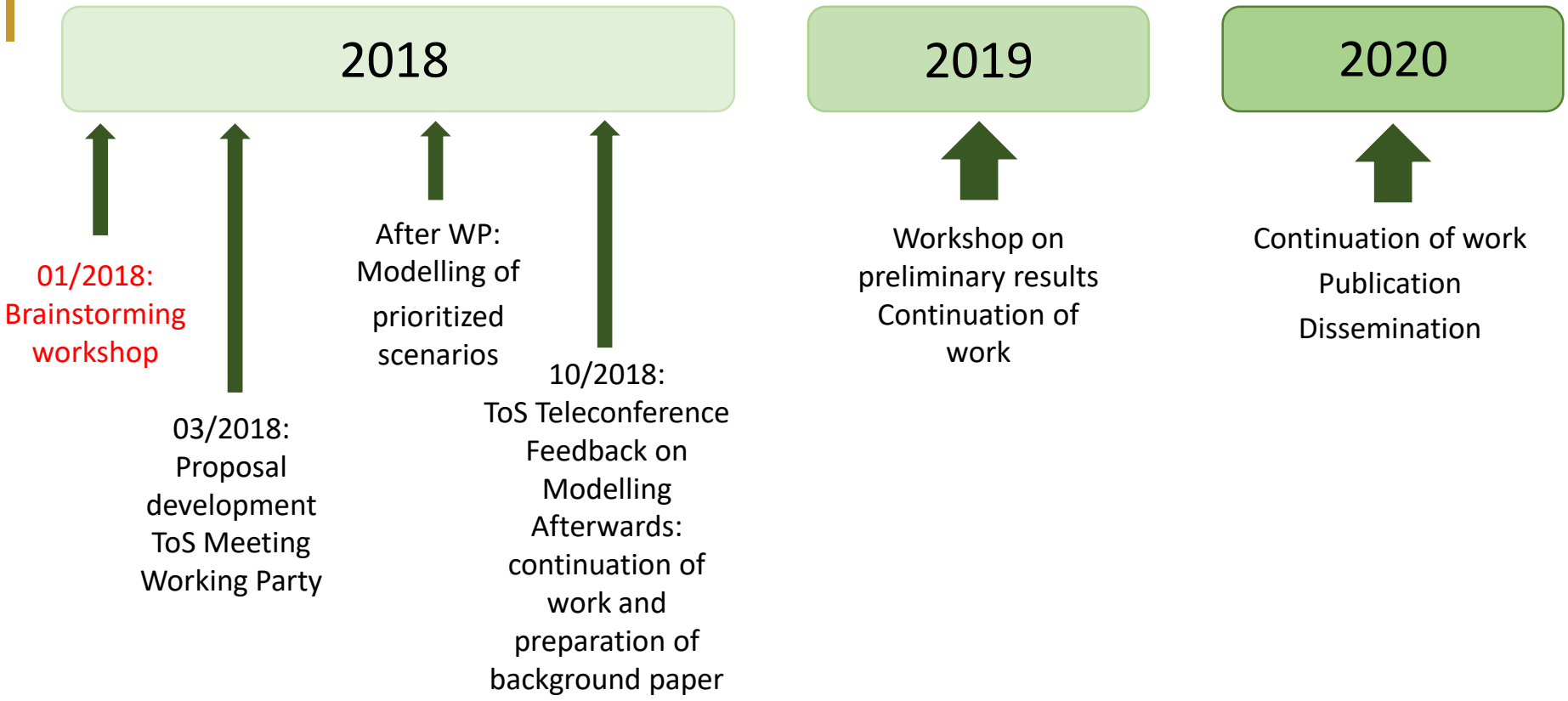
Workshop on preliminary results Continuation of work

2020

Continuation of work
Publication
Dissemination

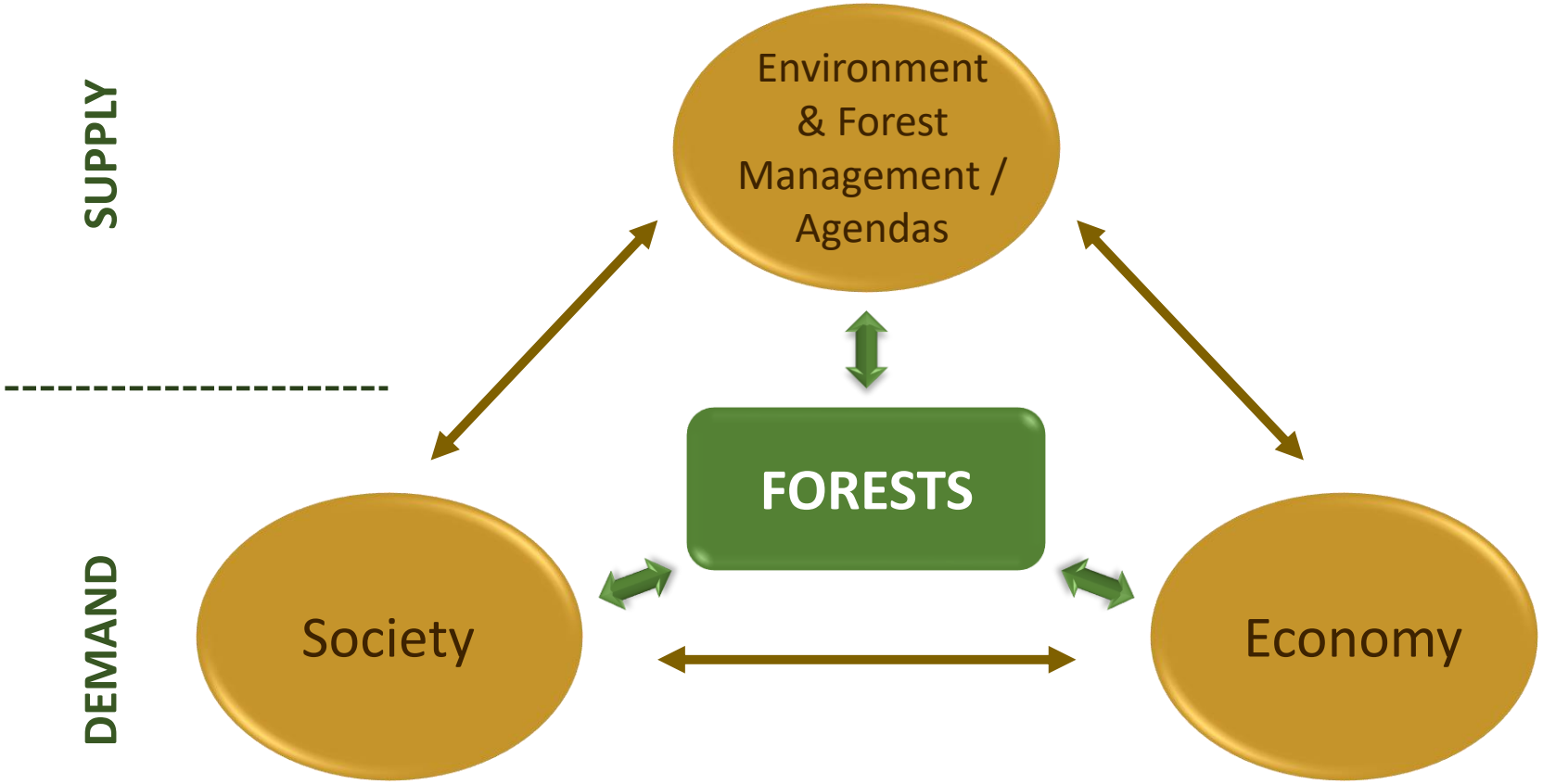
Process

Rough roadmap for the next FSOS



Brainstorming workshop 01/2018

Forests in 2050?



Brainstorming workshop 01/2018

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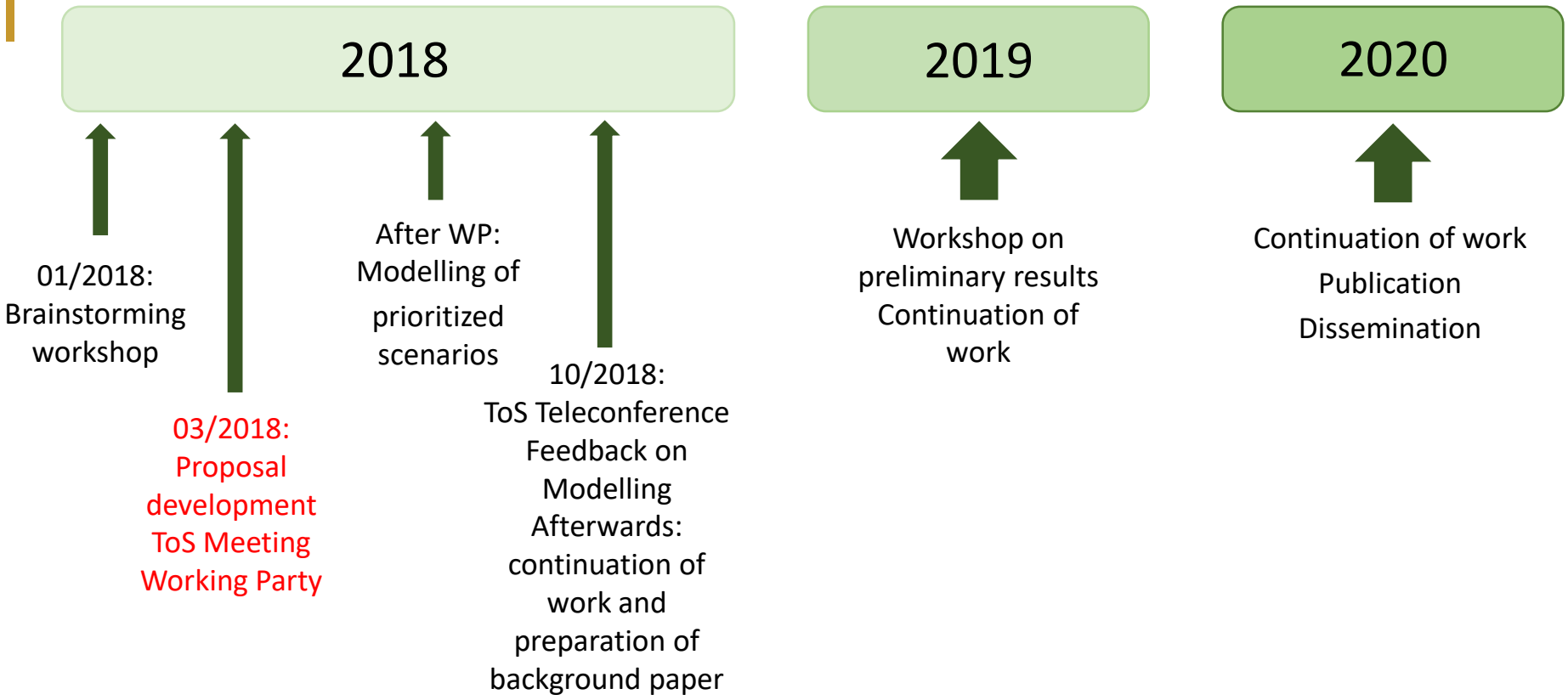
Process

Rough roadmap for the next FSOS



Draft proposal for the next FSOS 02/2018

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General aspect	Policy questions	Reference Scenario / Variables to compare	Possible alternative scenarios
Climate Change	What is the potential of UNECE forest sector for climate change mitigation? What can the UNECE forests contribute?	Carbon sequestration and avoided emissions in forests and wood products under a normal economic growth scenario = reference scenario (no change in forest land)	CC1: Potential of carbon sequestration in wood construction; assumption: significant increase in wood construction (UNECE and/or worldwide) CC2: Potential of carbon sequestration in traditional wood products; assumption: (policy-driven) significant increase in demand for wood products (UNECE and/or worldwide) CC3: Potential of carbon sequestration in new products based on wood fibres; assumption: technological advances that allow a significant increase of use of wood fibres CC4: Potential of carbon sequestration through (re-)forestation; assumption: policy-driven, significant increase of forests area in the UNECE region (e.g. Bonn challenge) CC5: Maximising carbon sequestration by changing silvicultural methods (update to the EFSOS II scenario "Maximising biomass carbon") CC6: Potential of climate change mitigation through substitution in the energy sector through an increased use of wood energy CC7: Combination of the above – what is the maximum that could be achieved given competing demands for wood products (possibly looking at Climate Smart Forestry)
	How will UNECE forests be affected by climate change? How will adaptation look like?	Supply of forest resources under current forest growth scenario (no further climate change)	CC7-CC10: Differences in supply of forest resources under the four representative concentration pathways (RCPs) from the IPCC 5th Assessment Report (possibly looking at resilience as well)
Structural Changes	How would different demand changes affect the UNECE forest product market?	Demand and prices for wood products under reference scenario	SC1: Massive increase of demand for wood constructions – within UNECE – and outside (especially China); closely linked to calculations for CC1 SC2: Significant increase of demand for wood-fibres for textiles and other products; closely linked to calculations for CC3 SC3: Significant economic collapse (whole world and/or specific countries/regions) SC4: Successful development of an alternative energy source and thus drastic decrease in demand for wood energy

Draft proposal for the next FSOS 02/2018

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			SC5: Significant decrease of demand for print and paper with simultaneous increase of demand for packaging SC6: Significant increase of biorefineries.
	How would different supply changes affect the UNECE forest product market?	Supply and prices for wood products under reference scenario	SC7: Significant increase of forest plantations outside of UNECE (e.g. Africa and/or Asia) SC8: Significant increase of natural disasters
	What would be the effect of massive restrictions to trade on the UNECE forest product market?	Supply, demand and prices under reference scenario	SC9: Trade between countries and/or regions is significantly restricted
Green Economy & SDGs	What are opportunities and challenges regarding green jobs?	Employment under the reference scenario	GS1: Effect of a significant increase of technology in forest employment (qualitative analysis) GS2: Effect of a significant decrease of qualified labour supply (qualitative analysis)
	What is the potential of the Payment of Ecosystem Services	What are current examples of PES	GS3: Effects of a wide-spread use of PES (qualitative & quantitative analysis)
	What is the potential contribution of UNECE forests and forest products to the achievement of the SDGs	SDG achievement under the reference scenario	GS4: Effects of a specific focus on the achievement of certain SDG targets (qualitative analysis)

ToS meeting 03/2018

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Possible scenario	Technical feasibility
Climate change mitigation (different aspect: potential carbon sequestration in wood construction and other wood products, different silvicultural methods, reforestation, substitution in energy (wood energy) and combination of the previous)	Feasible with a set of models
Climate change adaptation	Country-based review (no or little modelling involved)
Upcoming market scenarios (China, Africa)	Feasible, based on SSPs
Growth of specific products (construction, fibres, biorefineries)	Feasible
Economic disturbances	Feasible
Significant increase of forest plantations outside of UNECE	Feasible

ToS meeting 03/2018

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Possible scenario	Technical feasibility
Impact on forest product market by significant increase of natural disasters	Feasible
Impact of trade barriers (increase or decrease)	Feasible
Potential of Payment for Ecosystem Services	Not feasible as a full outlook scenario; parts could be covered (carbon payment), and current case studies be added
Employment	Not feasible as a outlook scenario, could potentially be a "post-analysis" on all scenarios
SDGs	Not feasible as a outlook scenario, could potentially be a "post-analysis" on all scenarios; labor-intensive
Circular Economy/Cascading-use of wood	Difficult to define well as a scenario, could be a "post-analysis" on all scenarios

Detailed report of the meeting with annex on scenarios

http://www.unece.org/index.php?id=48024

Input from the Working Party 03/2018

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Possible scenario	Average priority
Climate change mitigation CC	2.8
Growth of specific products (construction, fibres, biorefineries) SC	2.8
Climate change adaptation CC	2.6
Upcoming market scenarios (China, Africa) SC	2.6
Economic disturbances SC	2.6
Impact on forest product market by significant increase of natural disasters CC	2.4
Nature conservation	2.4
Impact of trade barriers (increase or decrease) SC	2.2
Potential of Payment for Ecosystem Services	1.8
SDGs	1.8
Circular Economy/Cascading-use of wood	1.8
Employment	1.6

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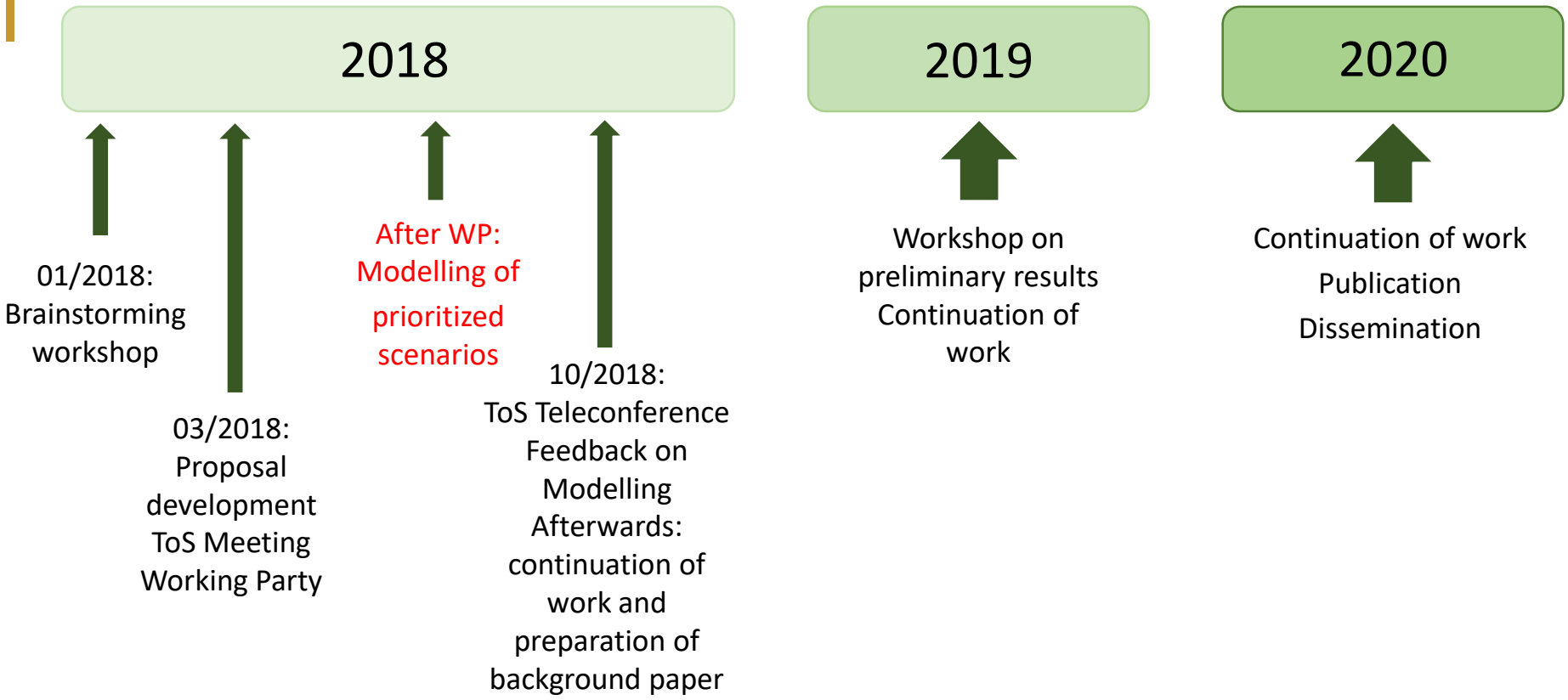
Climate Change = CC Structural Change = SC

Process

Rough roadmap for the next FSOS



Process

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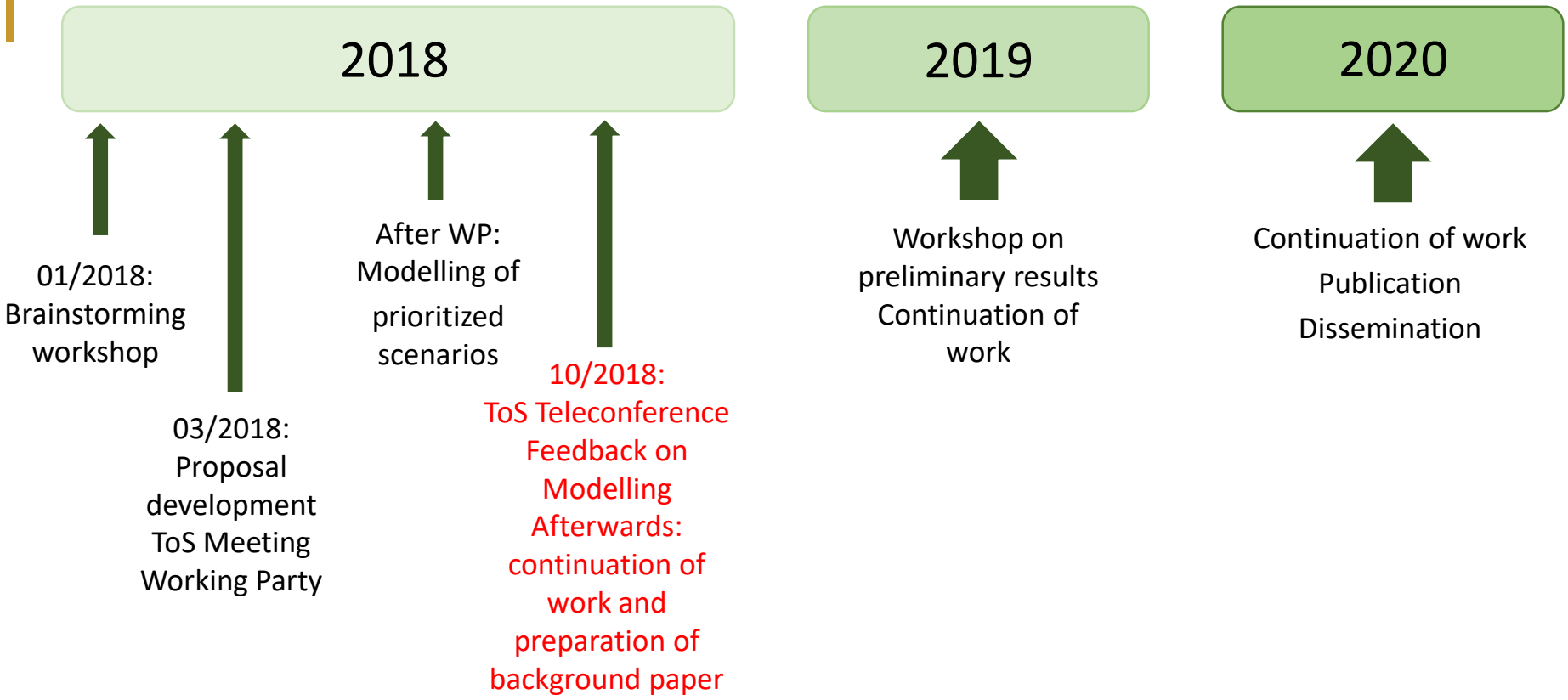

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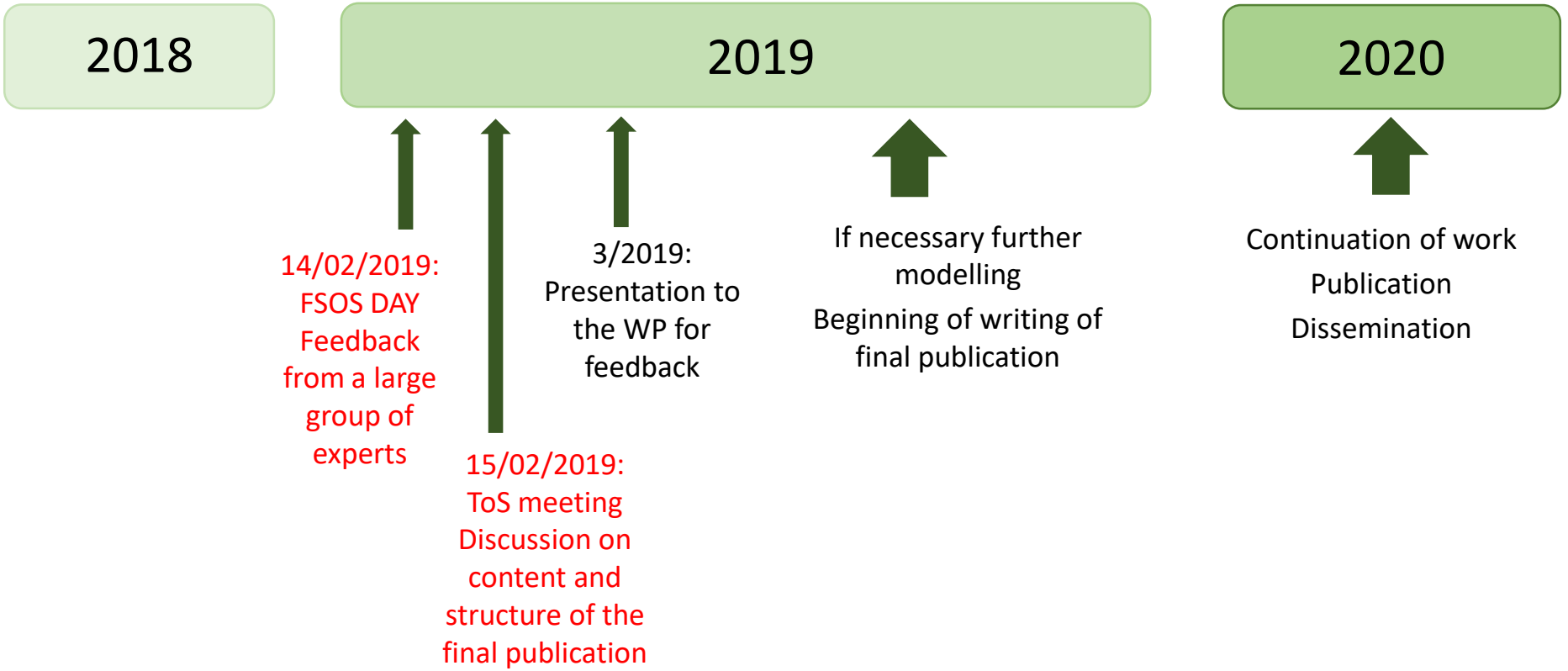

FSOS Events in Koli, Finland

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15 Feb: ToS Meeting

Discussion on the final products of the FSOS with the following proposal:

1. **Technical FSOS methodology report**, which would describe in detail the assumptions, model and scenario set-up, which were used for the modelling of the FSOS scenarios.

2. **Web page for the FSOS results** which would contain all the results from the scenario modelling including for regions and individual countries.

3. **20-30 pages FSOS publication** directed to policy makers with interesting insights answering the main policy questions as decided by the Joint Working Party and deemed feasible by the Team of Specialists

FSOS Publication

Proposed content and structure

The UNECE sector in a changing world – potentials and challenges

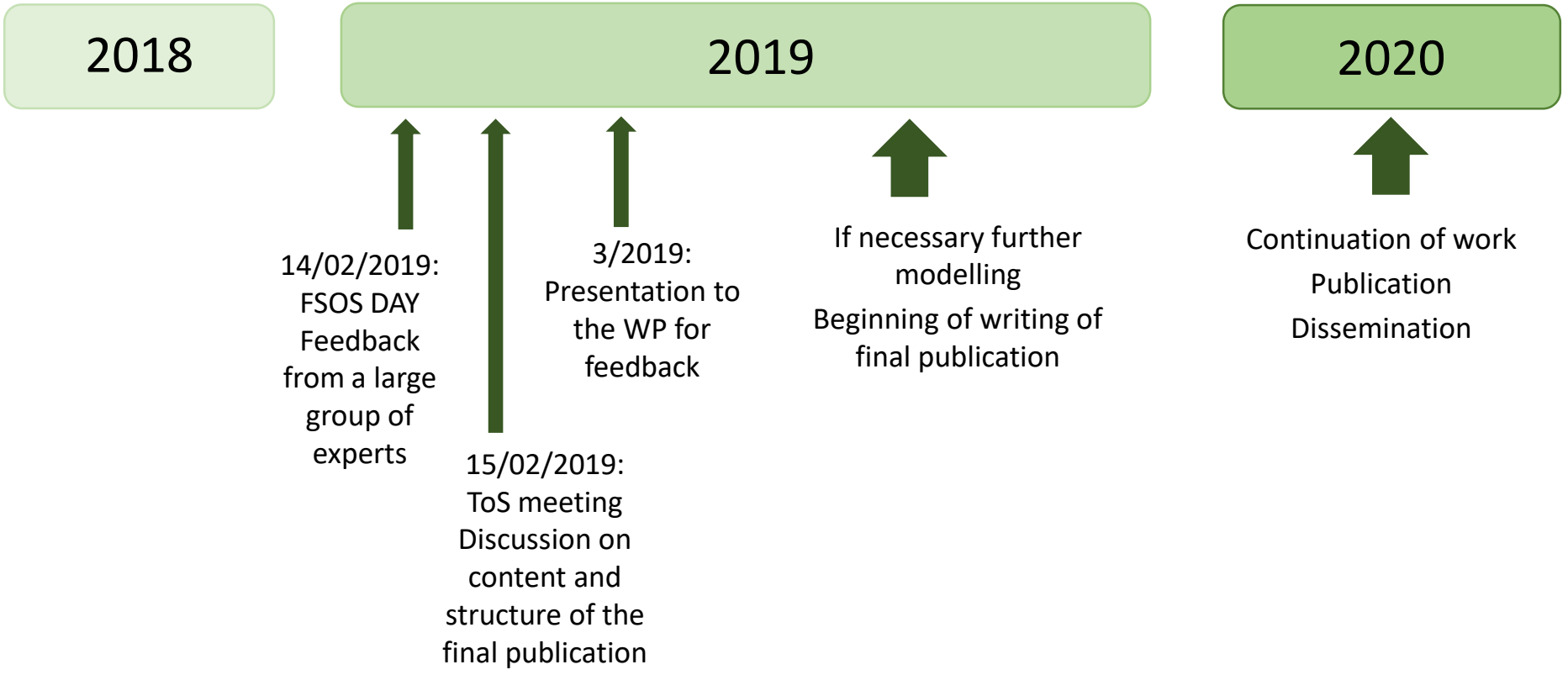
1. **Short Introduction:** explaining major global trends
2. **Structural changes chapter:** the effects of major economic changes and trends on the UNECE forest sector (with a focus on markets, prices etc.)
3. **Climate change chapter:** climate change mitigation and adaptation

Final policy questions

STRUCTURAL CHANGES	
Demand for wood products	How would different demand changes affect the UNECE forest product market?
Wood supply	How would different supply changes affect the UNECE forest product market?
Trade	What would be the effect of massive restrictions to trade on the UNECE forest product market?
CLIMATE CHANGE	
Impacts	How will UNECE forests be affected by climate change?
Mitigation	What can UNECE forests and the forest sector contribute to climate change mitigation?
Adaptation	How will climate change adaptation look like in the UNECE region with respect to forests?

Process ahead

Rough roadmap for the next FSOS



4. The world in 2050

The World in 2050

Some ideas

Consumers?

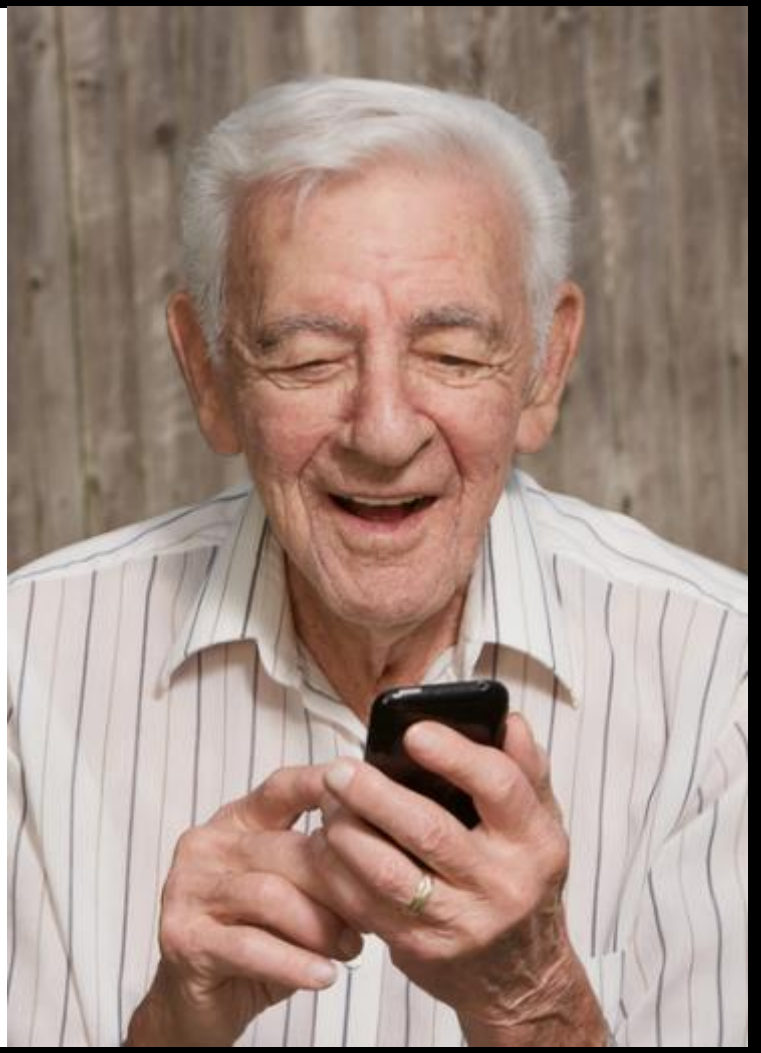
By 2050 the world population will be 9 – 10 billion

Consumers?

Age Breakdown of World Population, 1950-2050

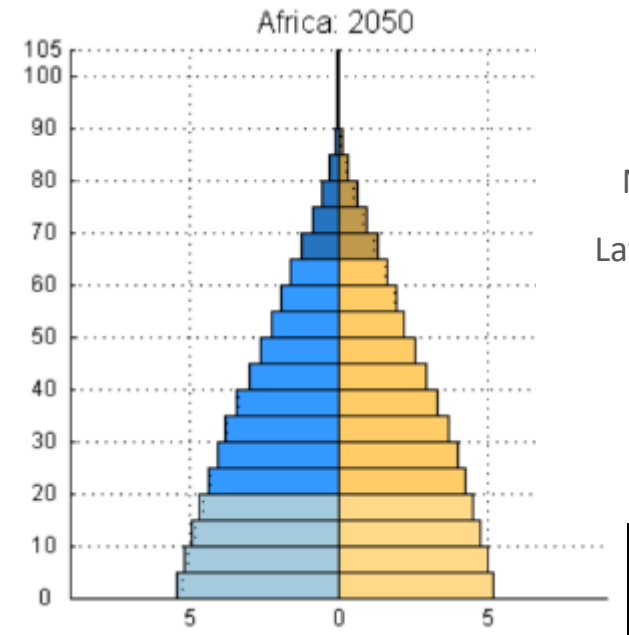
	% 0-14	% ages 15 to 59	% ages 60 and older
1950	35%	58%	8
1970	38	55	8
1990	33	58	9
2010	27	62	11
2030	23	61	17
2050	20	58	22

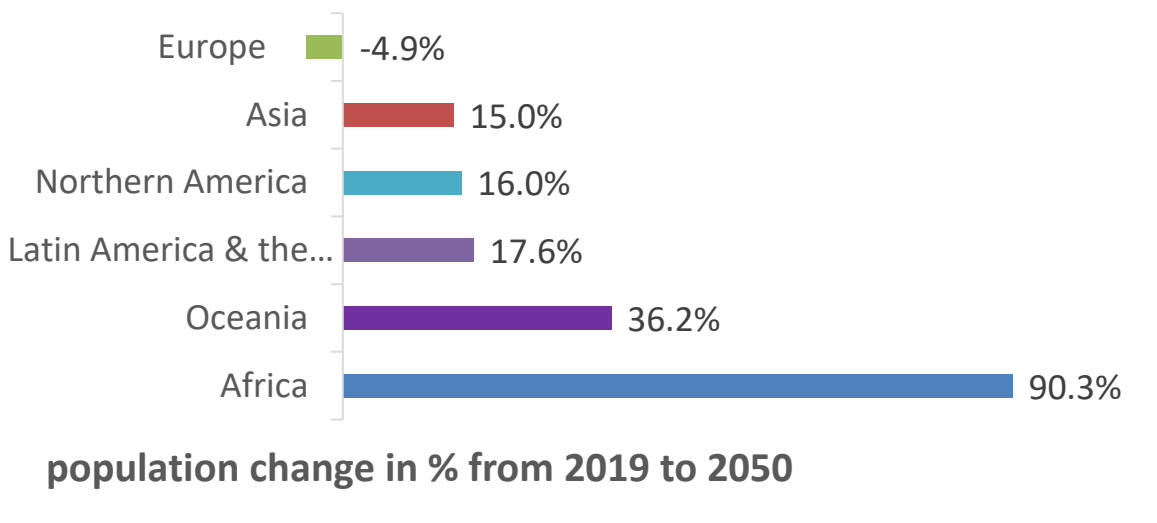
Sources: United Nations, World Population Prospects, the 2010 Revision; The Future of World Religions: Population Growth Projections, 2010-2050. Figures may not add to 100% due to rounding.



22% aged over 60 compared to 11% in 2010

Consumers?

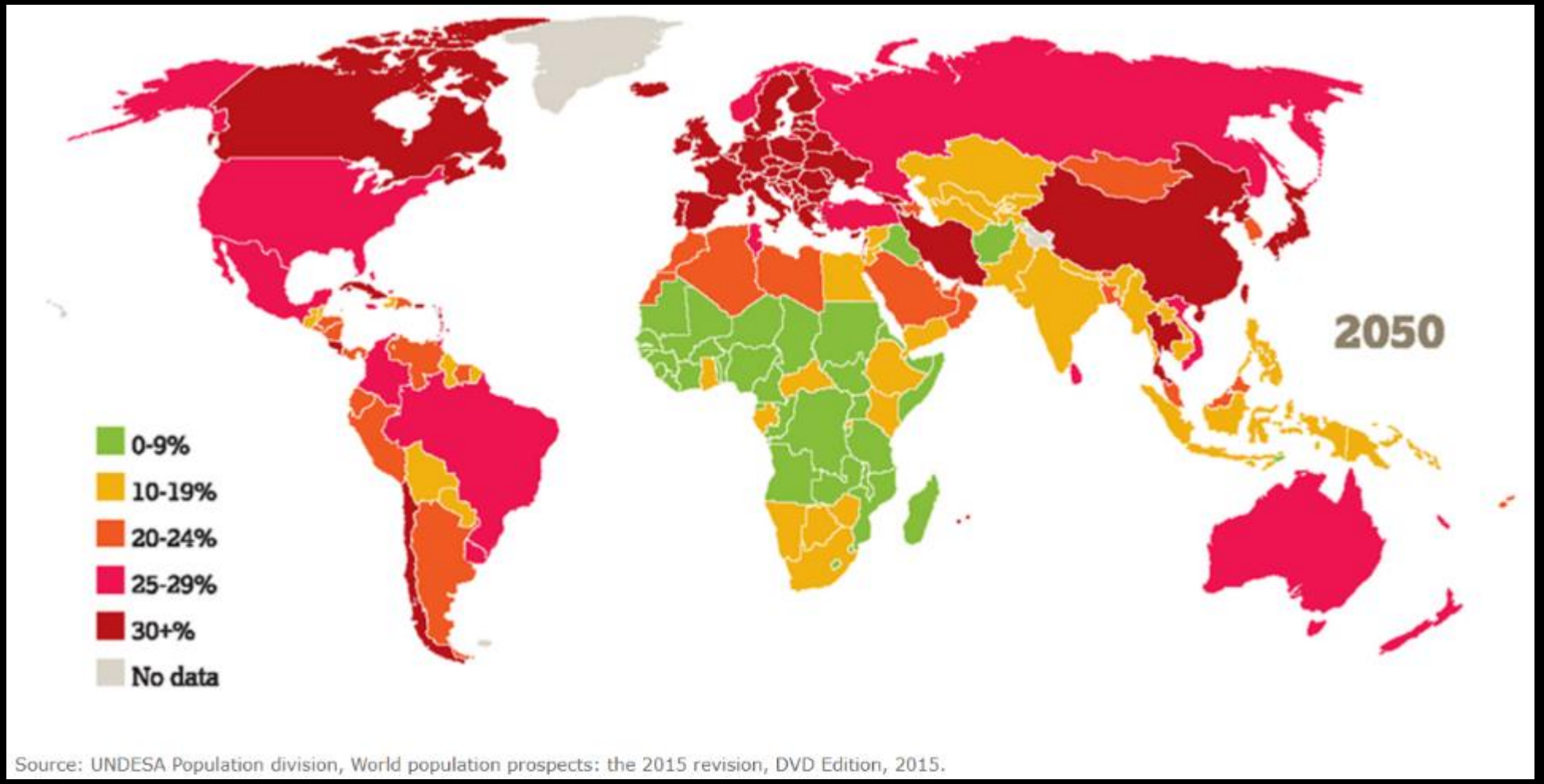




African population will still be young and growing

Consumers?

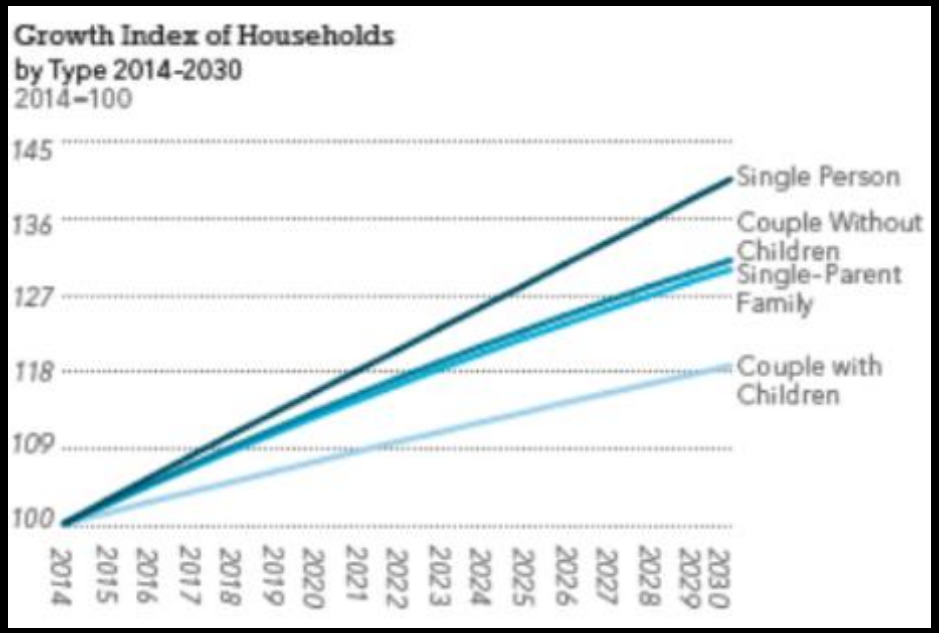
The proportion of population aged 60 or over in 2050



Source: UNDESA Population division, World population prospects: the 2015 revision, DVD Edition, 2015.

African population will still be young an growing

Consumers?

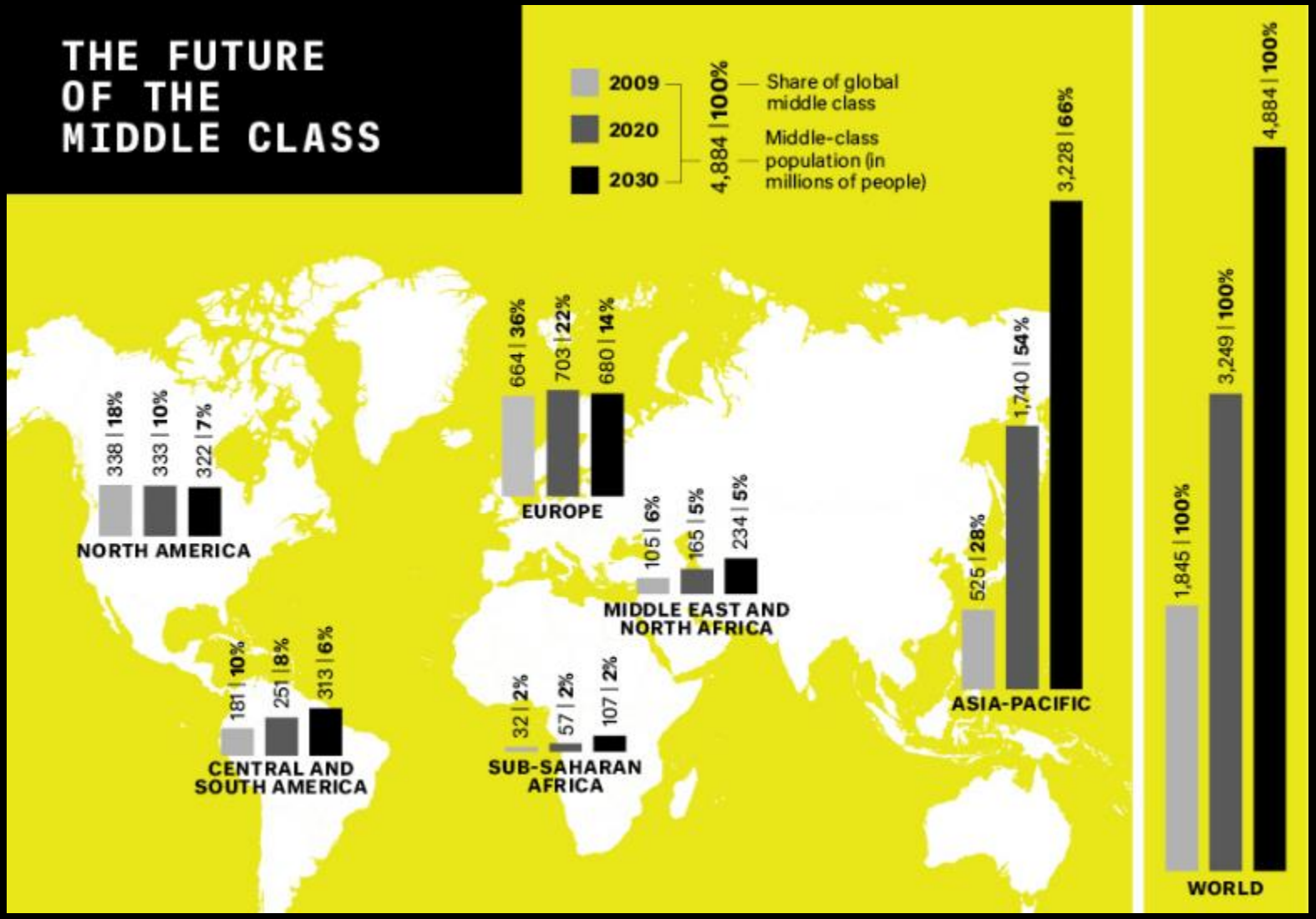


Single households on the rise!

Consumers?

… especially in Asia!

Consumers?



Shifts in the global middle class

Consumers?

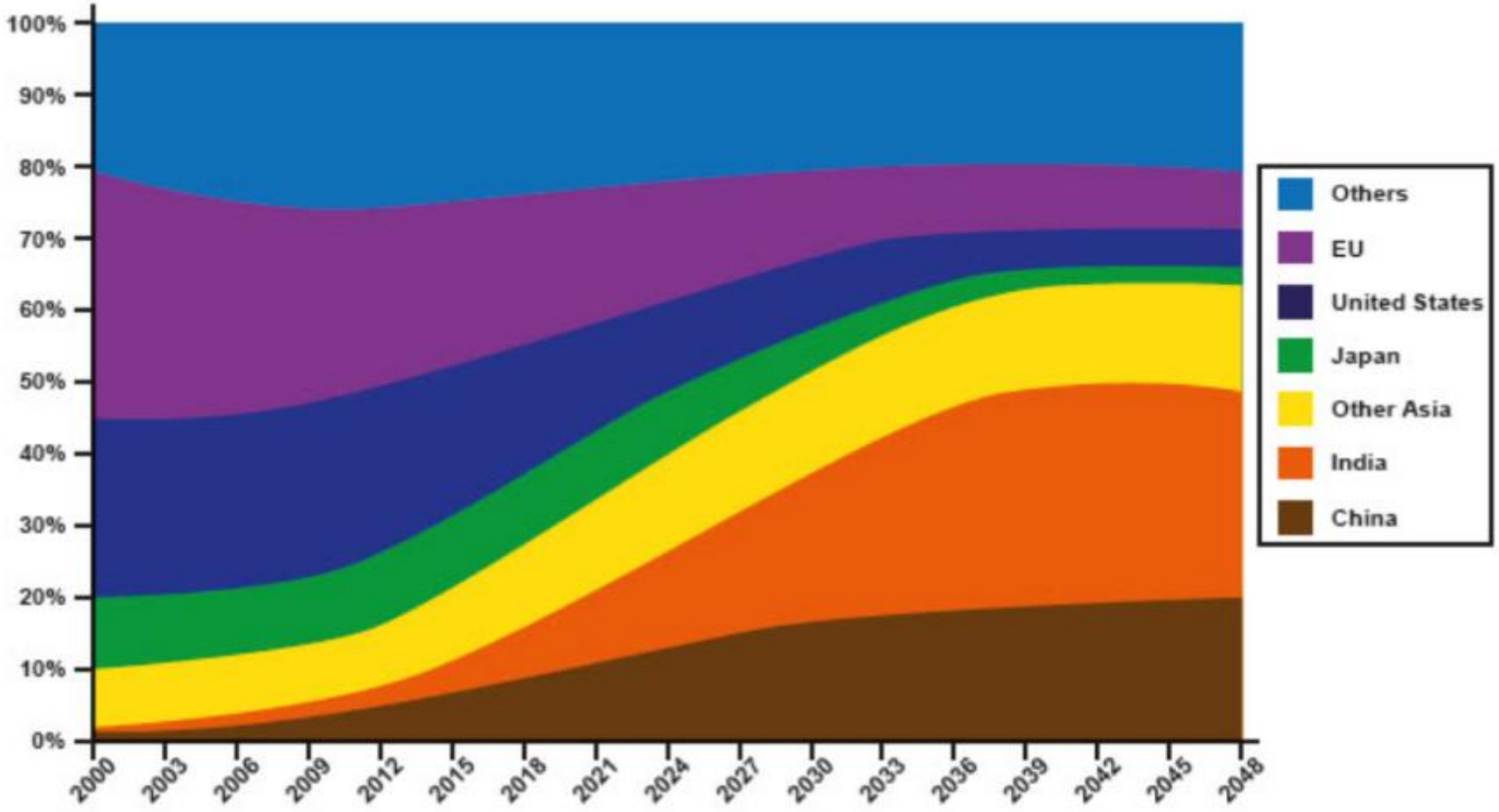


Figure 3: Regional shares of global middle class consumption, 2000-2050. Source: OECD [25]

Shifts in the global middle class

Economic situation?

130% Cumulate GDP growth between 2016 and 2050

20% China's projected share of world GDP by 2050

2nd India's global GDP ranking at PPPs by 2050

9% EU27's share of global GDP at PPPs by 2050 (excluding UK)

Economic situation?

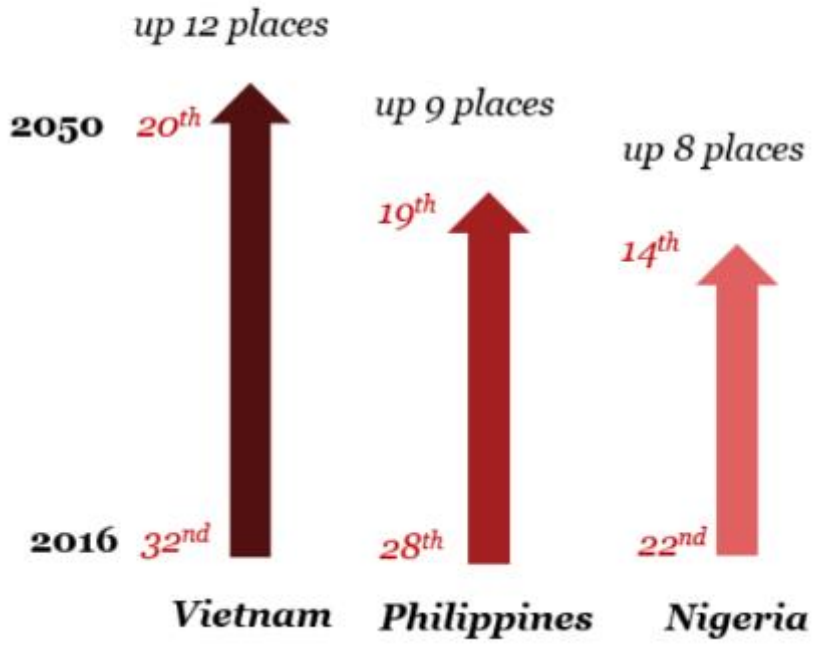
Emerging markets will dominate the world's top 10 economies in 2050 (GDP at PPPs)

	2016	2050	
China	1	1	China
US	2	2	India
India	3	3	US
Japan	4	4	Indonesia
Germany	5	5	Brazil
Russia	6	6	Russia
Brazil	7	7	Mexico
Indonesia	8	8	Japan
UK	9	9	Germany
France	10	10	UK

E7 economies G7 economies

Sources: IMF for 2016 estimates, PwC analysis for projections to 2050

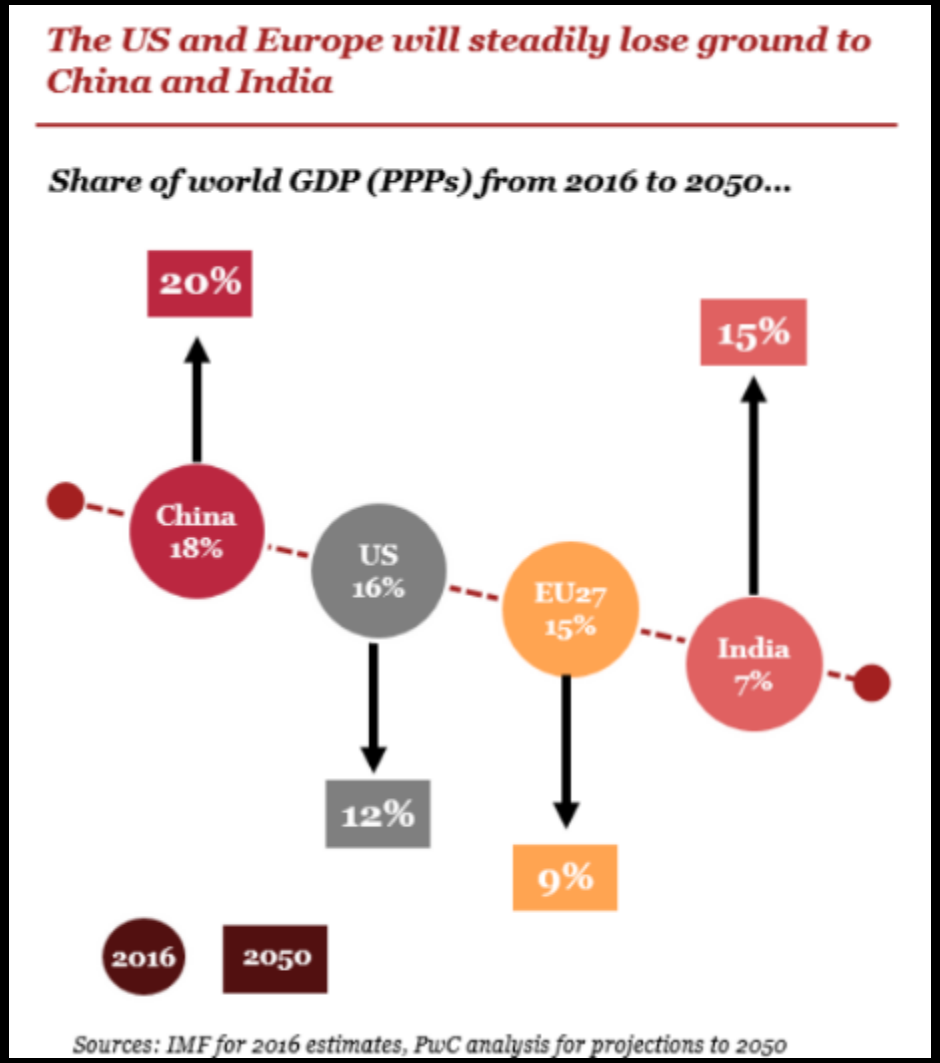
Vietnam, the Philippines and Nigeria could make the greatest moves up the rankings

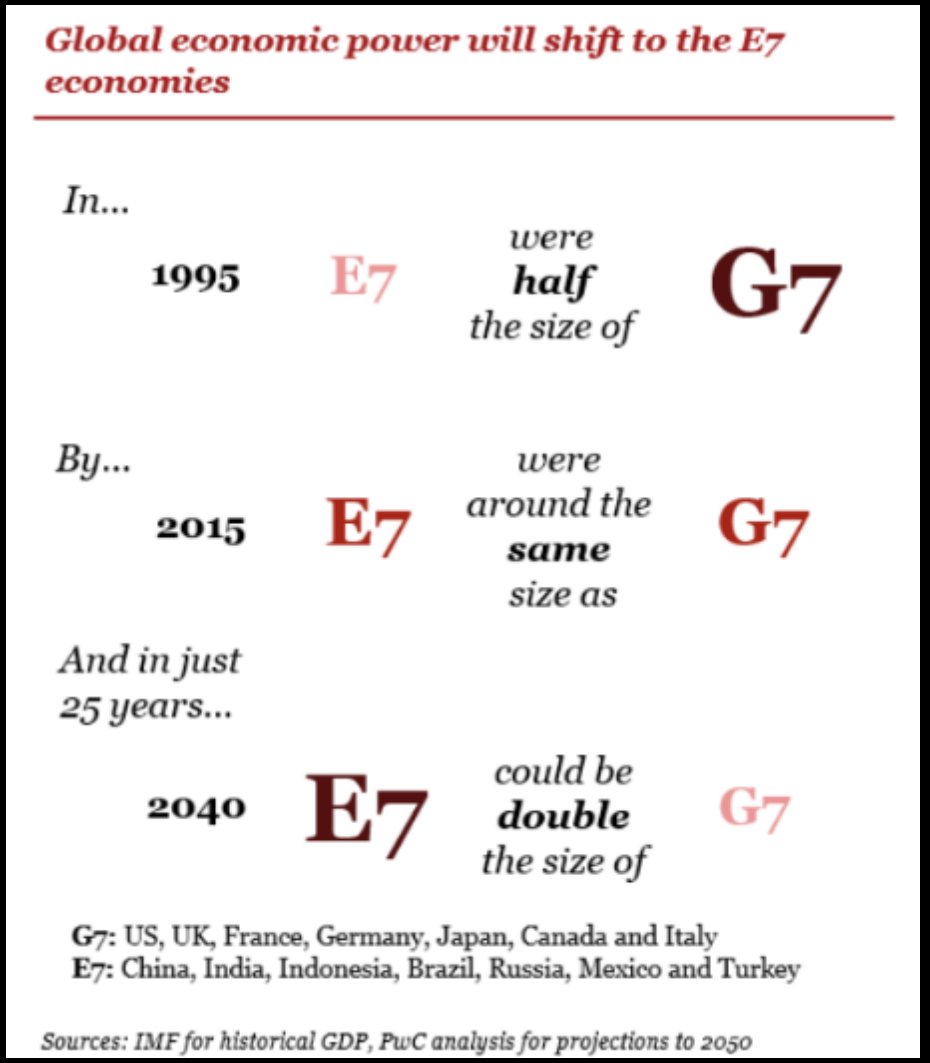


Sources: IMF for 2016 estimates, PwC analysis for projections to 2050

Shifts in the ranking of economies

Economic situation?





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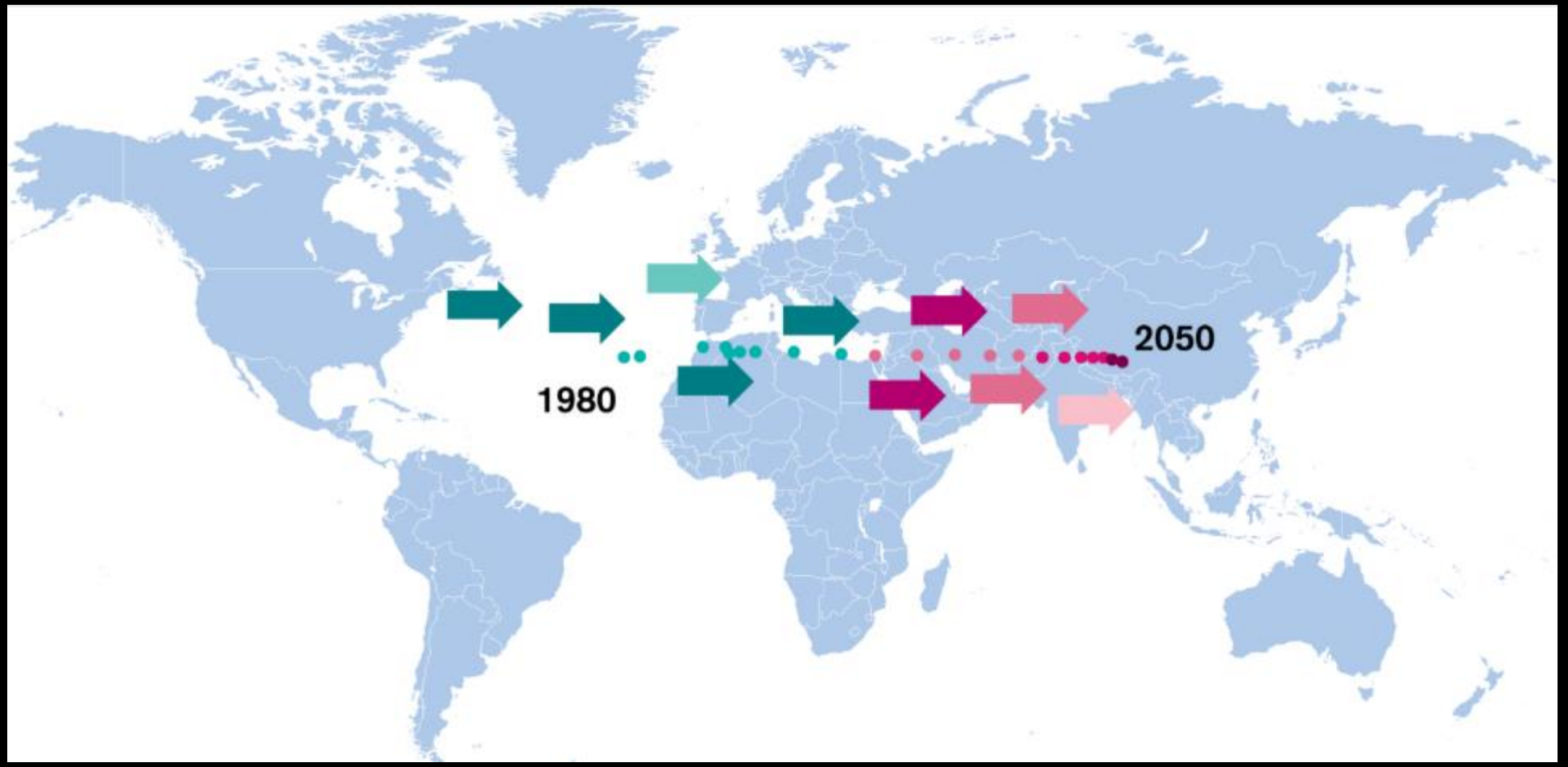
Economic situation?



Global economic centre of gravity moving from east to west

Where will we live?

More than 70% of the world's population will live in cities

Where will we live?

Displacement due to extreme weather

Where will we live?

Displacement due to war, violence and persecution

Labour market?

Up to 50% of jobs could be replaced by robots

Labour market?

Martin Smith, Professor of Robotics, Middlesex University:

The jobs we will see machines taking over first

1. Train driver
2. Taxi driver as well as goods vehicle driver
3. Hospital and office porters
4. Astronauts
5. Floor cleaners
6. Teachers and lecturers
7. Lab technicians and scientists
8. Pharmacists
9. Security guards
10. Airline pilots

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Thank you!

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