



# Identifying Regional Drivers of Future Land-Based Biosphere Integrity Footprints

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# Biodiversity footprints – now and in the future



To date:

Focus of biodiversity footprint studies has been on **current** and **past** biodiversity impacts

Our objectives:

- Assess how biodiversity footprints change over time
- Identify drivers of future biodiversity footprints
- Compare future biodiversity footprints to the Planetary Boundary threshold for biosphere integrity

This requires

- A range of **socio-economic development** scenarios
- Associated **land use change**
- Suitable **biodiversity indicator**

# Biodiversity footprints – now and in the future



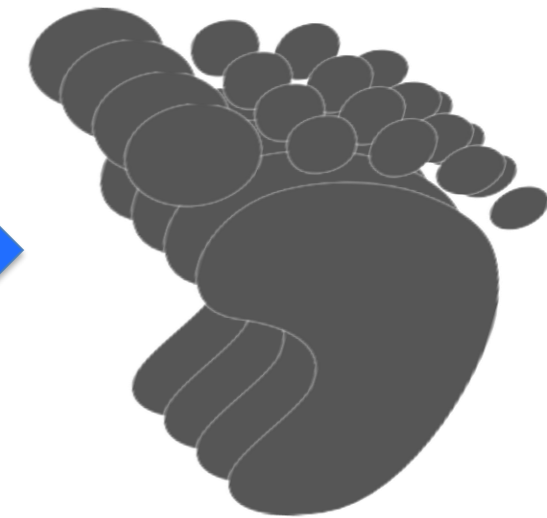
Supply and Demand



Land use



Biodiversity indicator



# Biodiversity footprints – now and in the future



## Supply and Demand



SSP scenario output (IMAGE model)

Biodiversity Intactness Index

## Land use

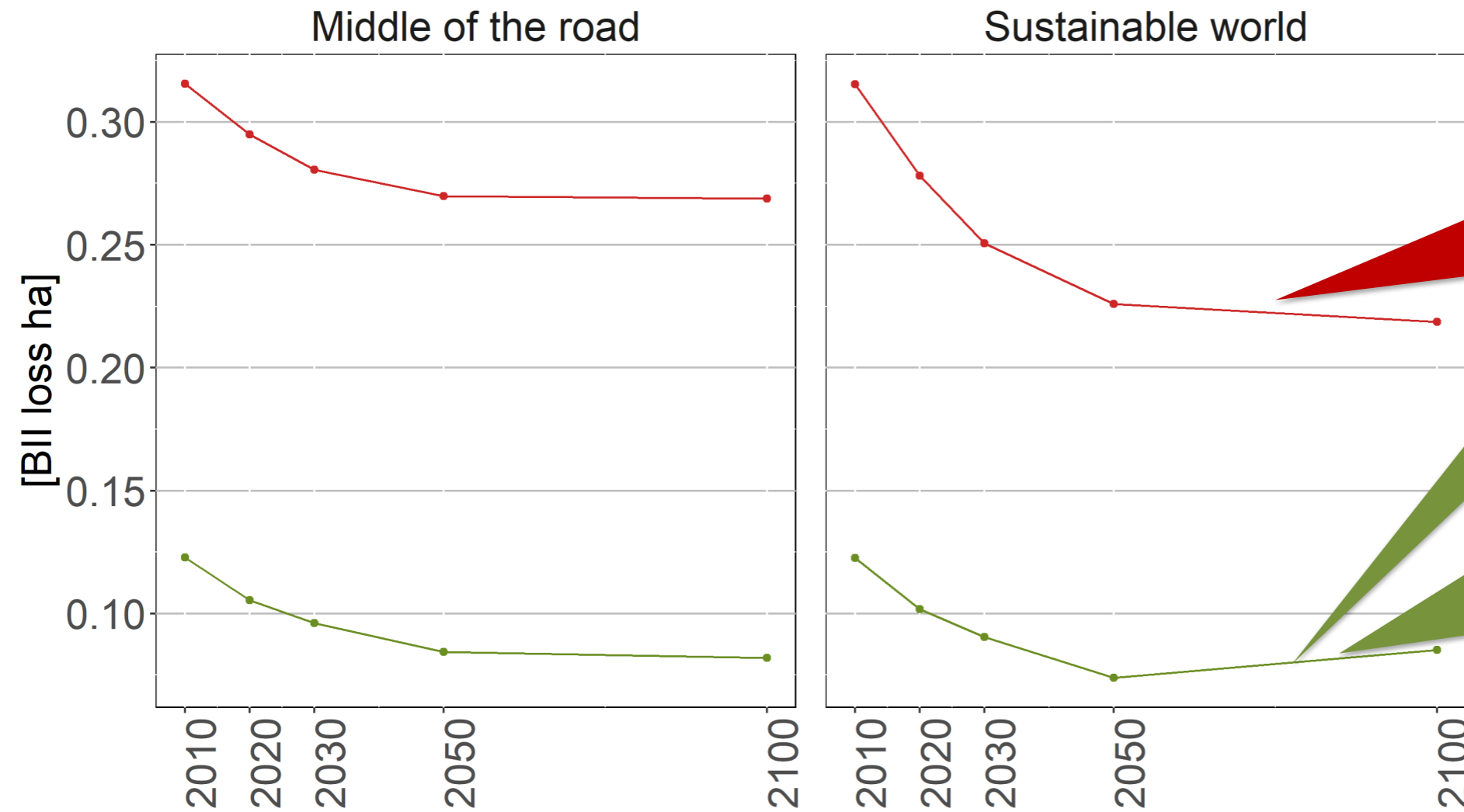


Biodiversity indicator



SSP = Shared Socio-economic Pathway

# Per capita footprints – North America and Africa

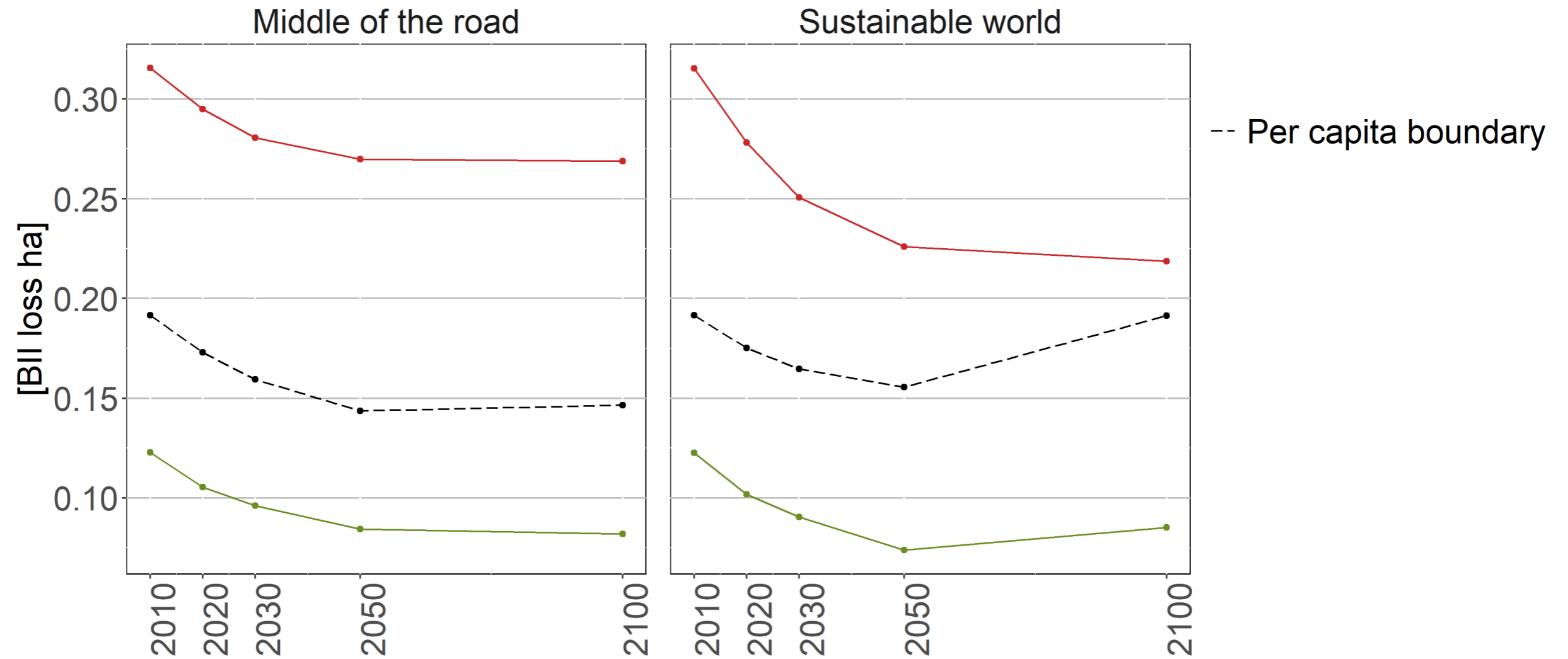


Lower animal-based consumption

Higher crop-based consumption from high-intensity cropland

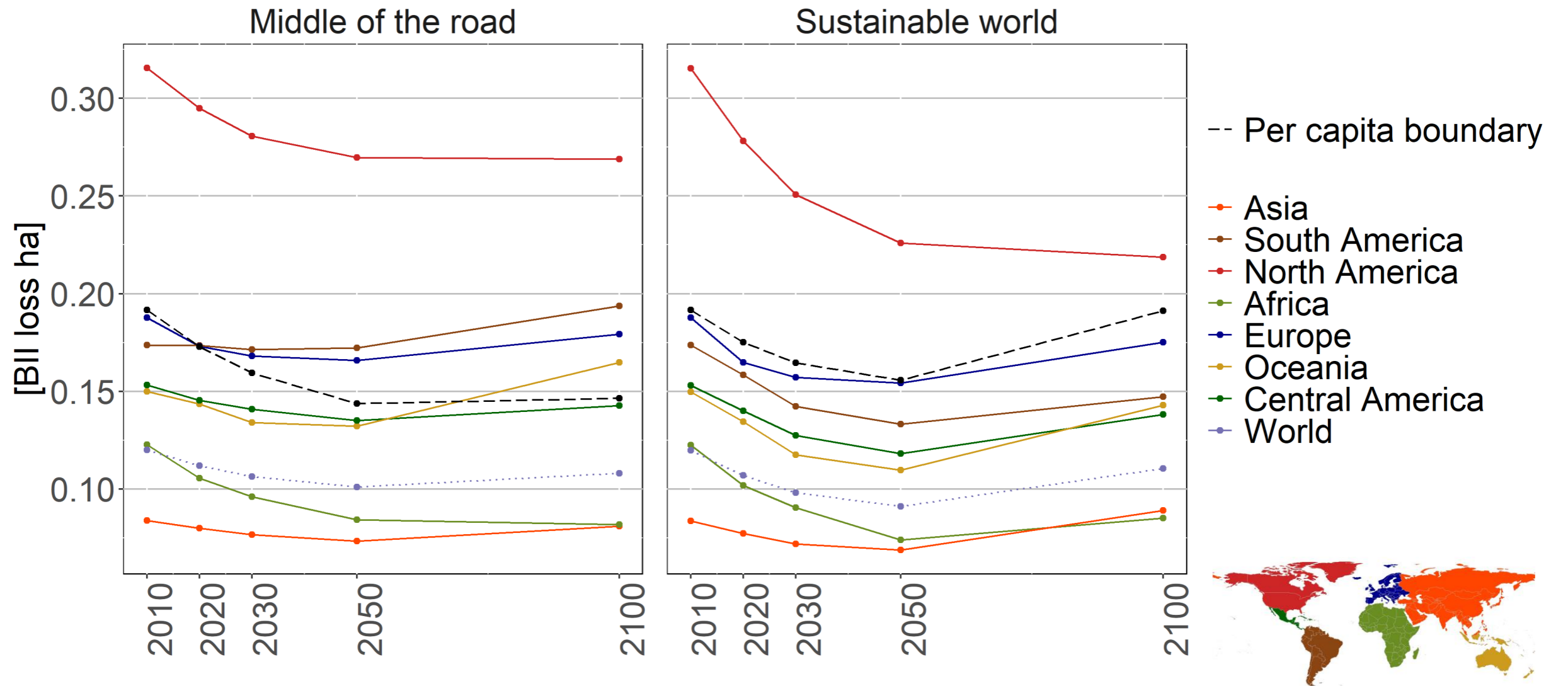
BII = Biodiversity Intactness Index

# Per capita footprints – North America and Africa



BII = Biodiversity Intactness Index

# Per capita footprints



BII = Biodiversity Intactness Index

# Future biodiversity impacts and drivers of change



Contextualizing results against the Planetary Boundary → threshold recognized by a wider audience

- Scenario matters
  - Middle of the road: 4 regions above boundary
  - Sustainable world: 1 region above boundary

Regional focus matters → highlights need for different policy action

- Reducing animal-based consumption → North America and Africa
- Closing yield gaps, reduction in harvest and post-harvest losses → Africa





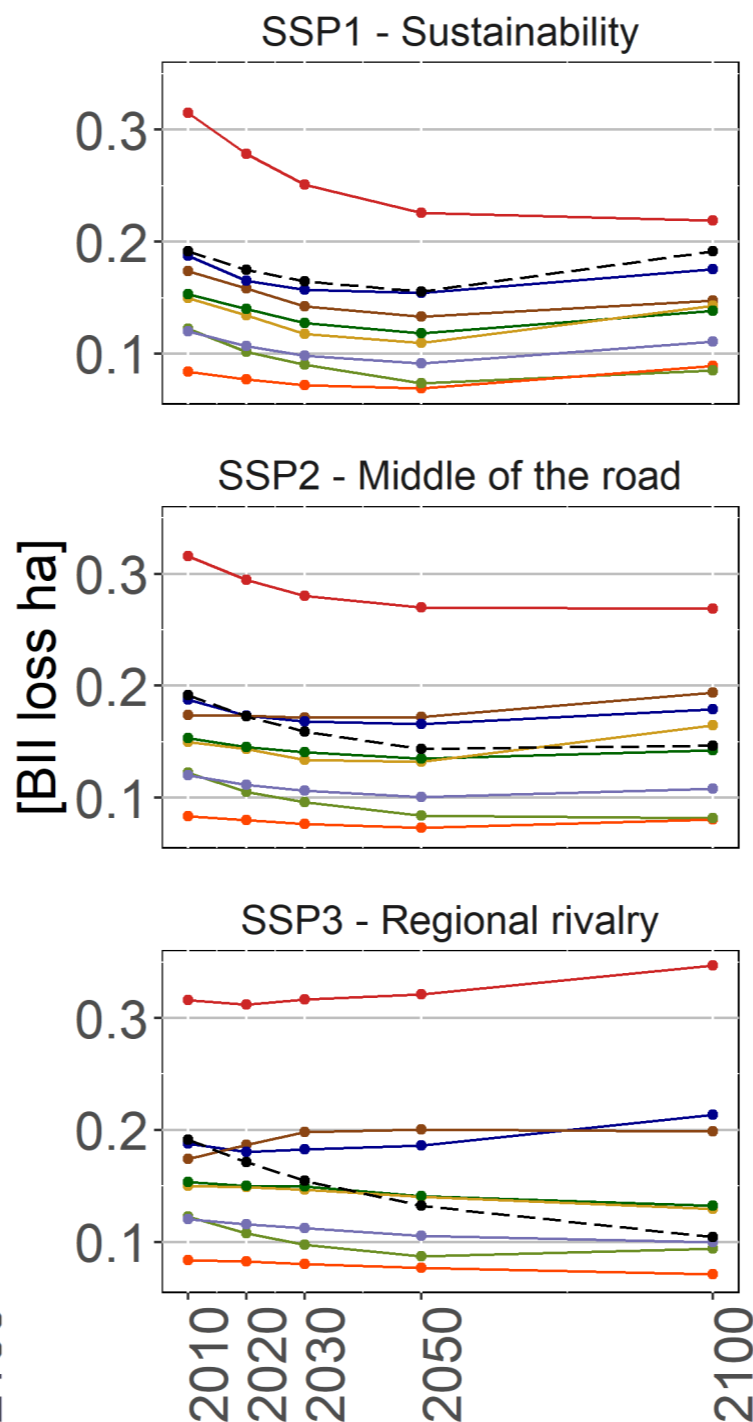
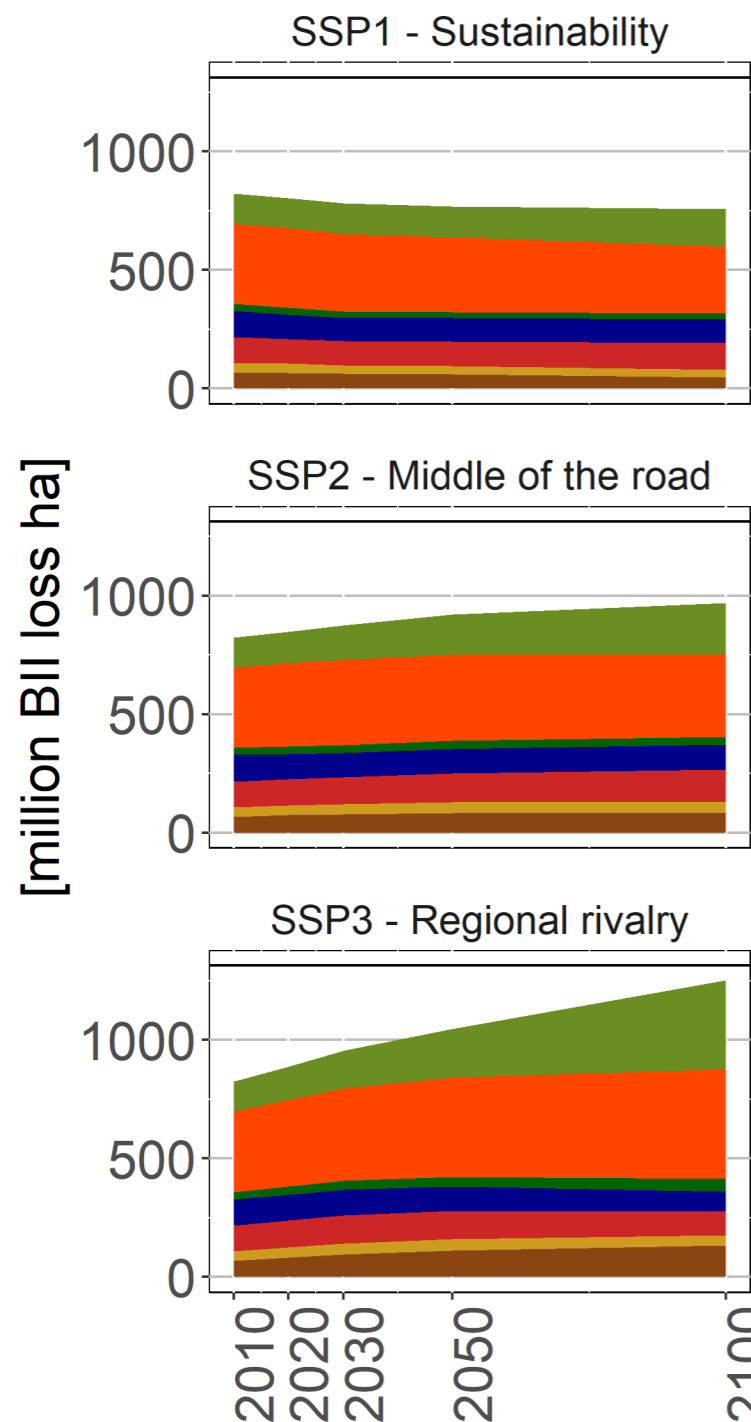
Thank you!

# References



## Pictures

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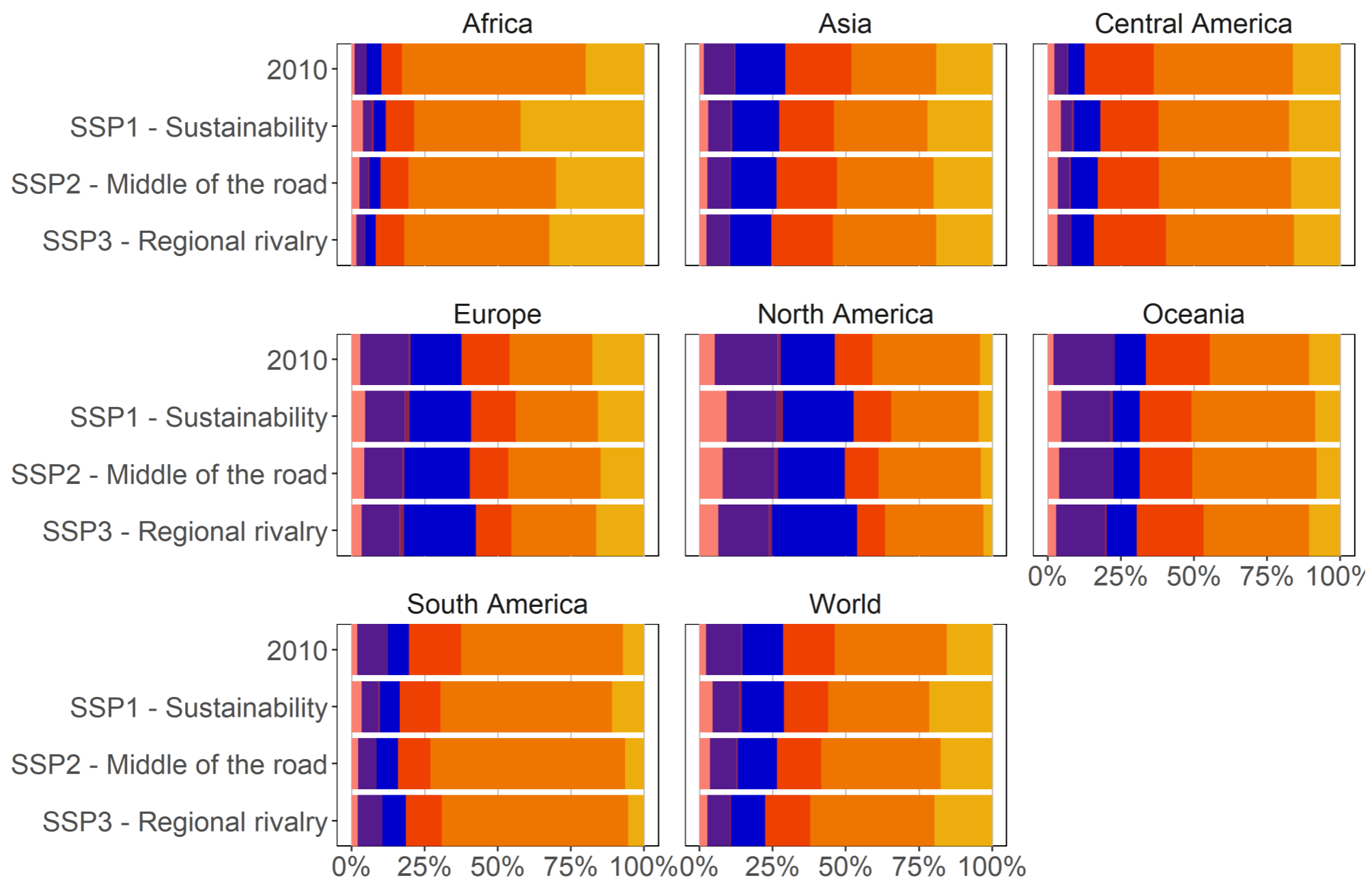


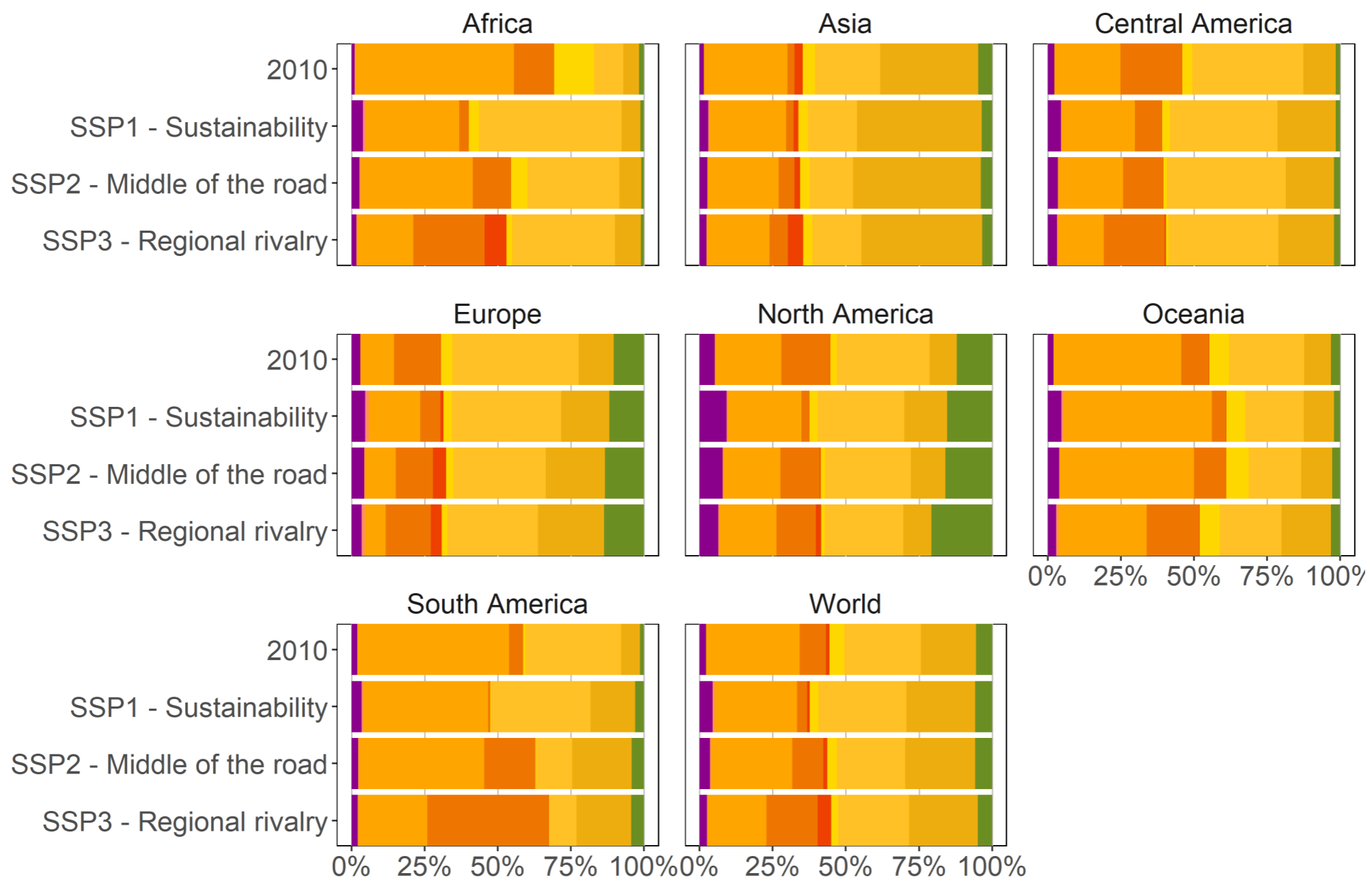
— Planetary safe operating space

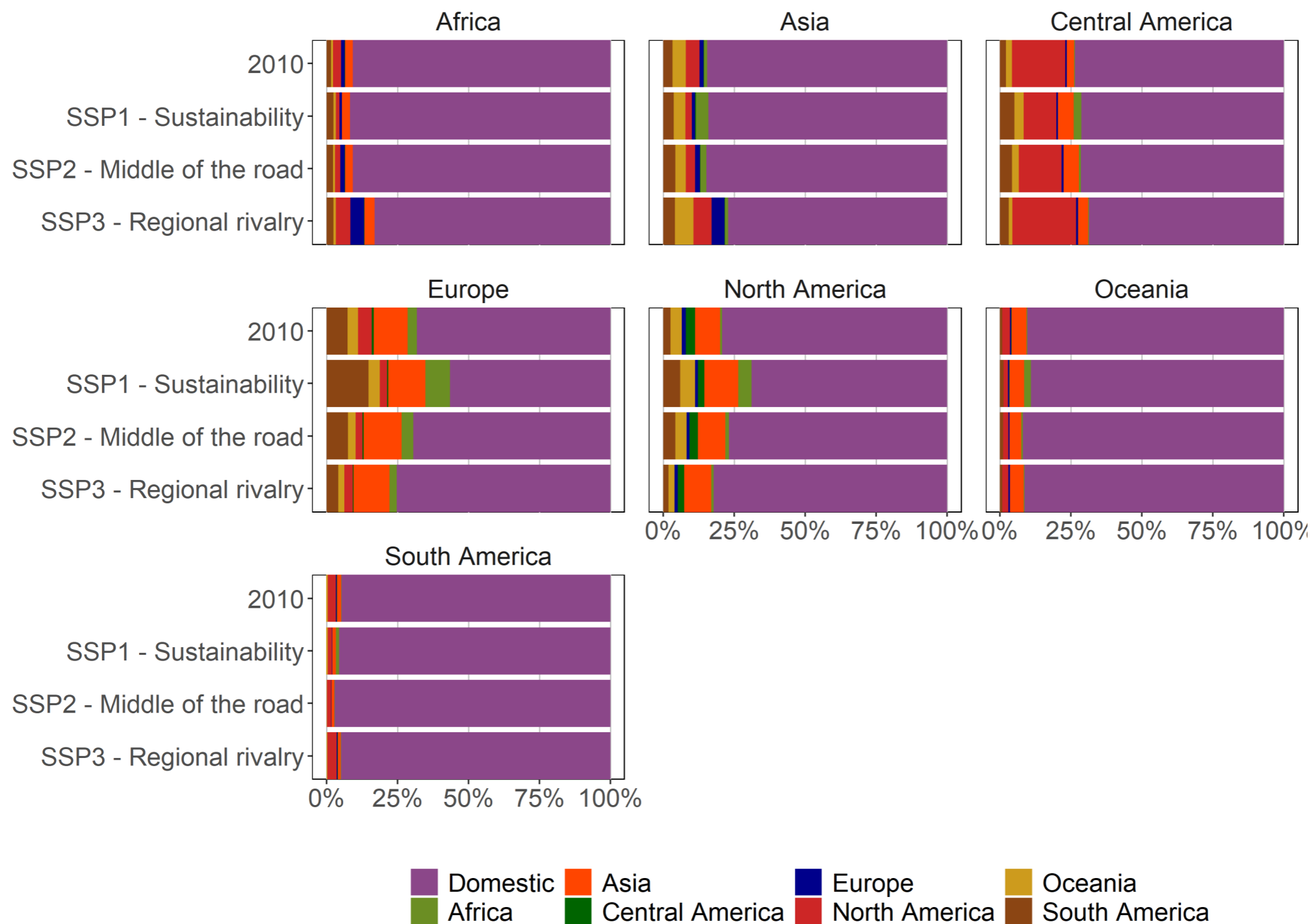
-- Per capita boundary

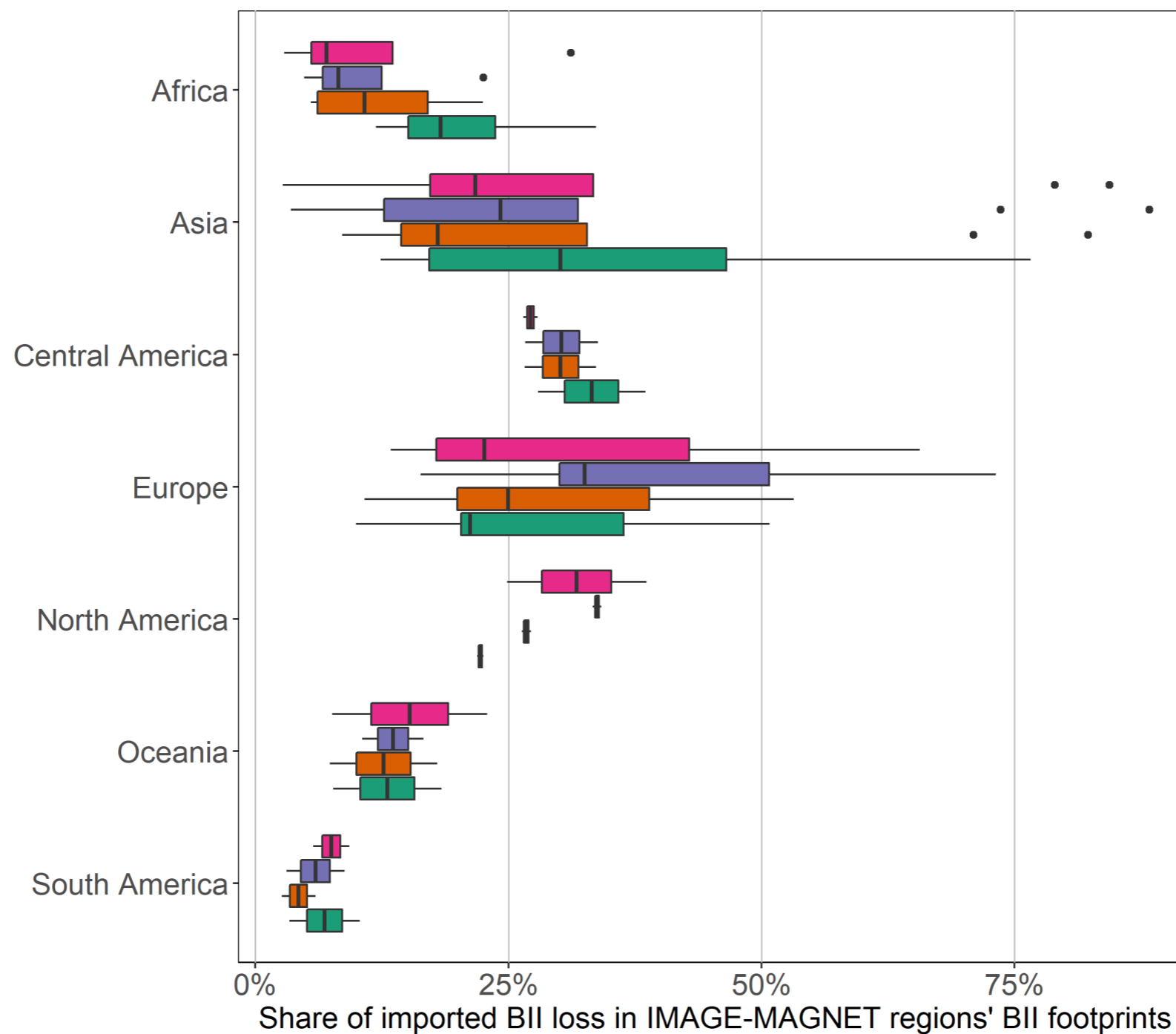
- Asia
- South America
- North America
- Africa
- Europe
- Oceania
- Central America
- World











■ 2010 
 ■ SSP1 - Sustainability 
 ■ SSP2 - Middle of the road 
 ■ SSP3 - Regional rivalry