

NORTH AMERICAN CITIES HAVE HIGH PER CAPITA CONSUMPTION-BASED GHG EMISSIONS

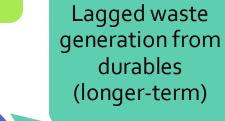
Connecting Consumption, Emissions & Waste



Waste generation from non-durables (short-term)



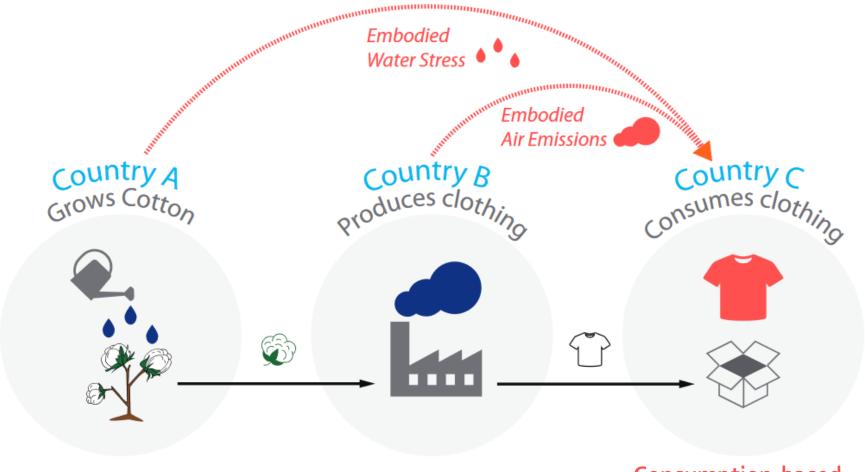
Impacts from emissions along supply chain & during use





Consumption

Illustration of environmental impacts embodied in international trade



Domestic Water Stress

Domestic Air Emissions

Consumption-based impacts

Comparing Types of Emissions Inventories

Consumption-Based includes:

Territorial includes:



Domestic emissions from products we **use**

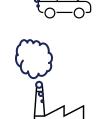


Domestic emissions from products we **make and buy**

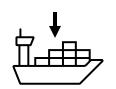


Imported emissions along the supply chain from products we buy

Domestic emissions from products we **use**

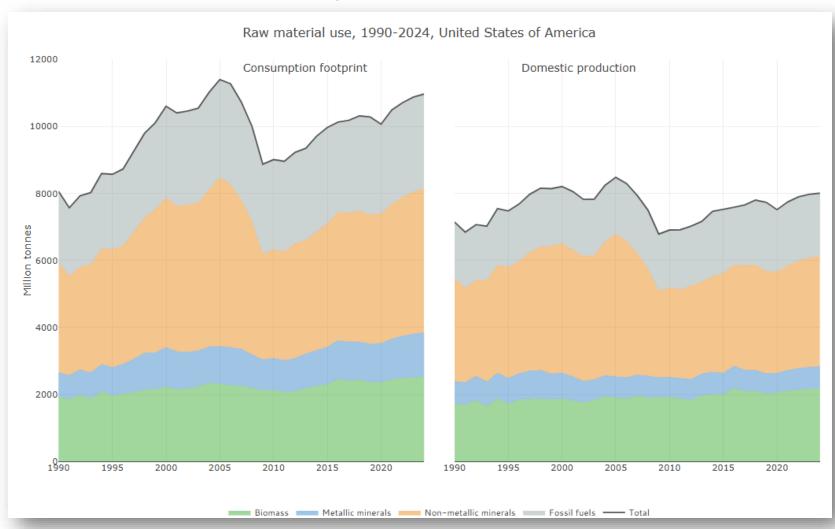


Domestic emissions from products we **make and buy**

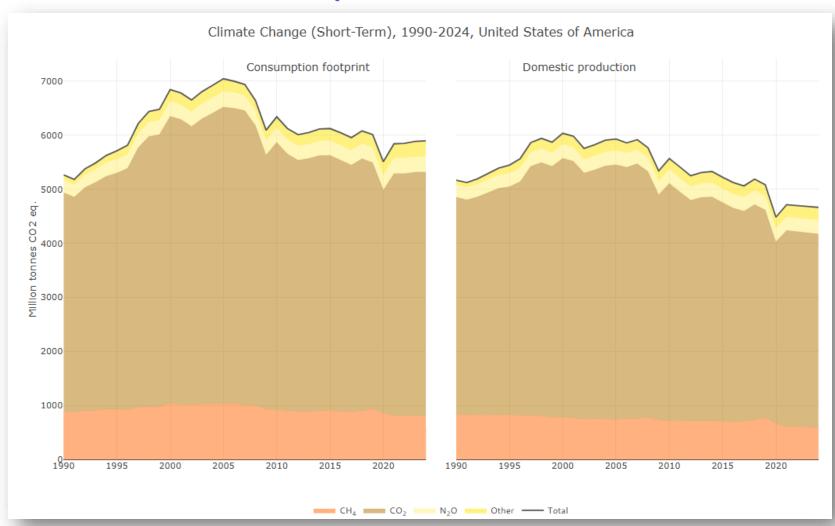


Domestic emissions from products we **make and export**

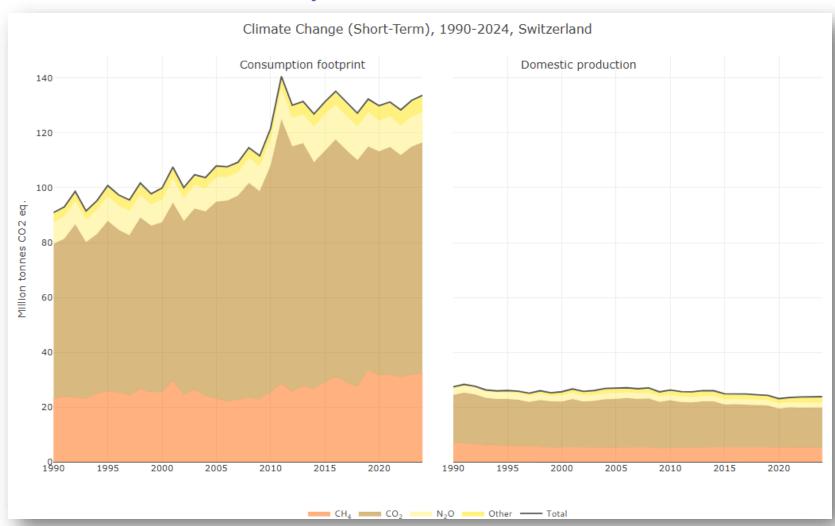
US raw material footprint: consumption > territorial



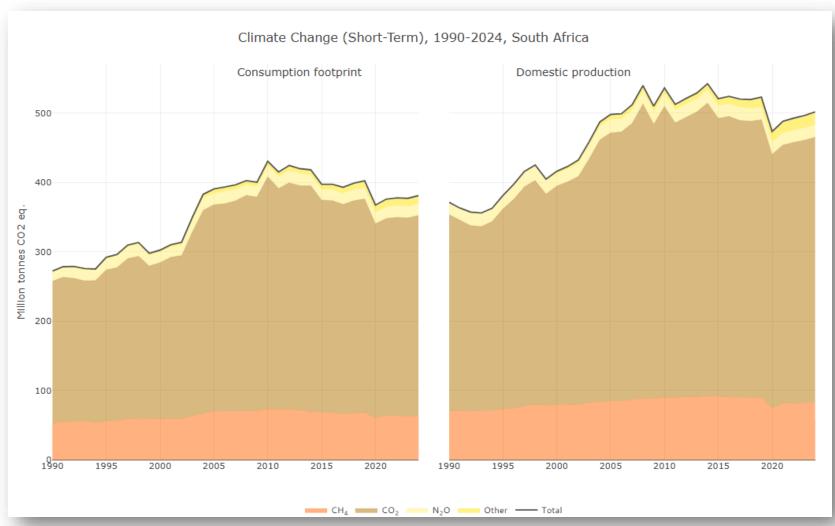
US climate change footprint: consumption > territorial



Switzerland climate change footprint: consumption >>> territorial



South Africa's climate change footprint: consumption < territorial



How are CBEI estimates calculated?

Government Economic Data

Input-Output Tables: Economic (\$) exchanges between industries, purchases by consumers & gov't, investment in assets High-level Environmental Data

Total emissions per industry

Total emissions from consumer use phase

EEIO Model

Matrix Math:

Estimate average supply chain impact per commodity e.g. 5 kg CO2e / \$

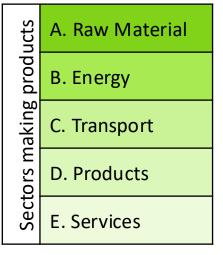
Environmentally-Extended Input Output (EEIO)

...are the "inputs" to these sectors:

Sectors using products						
A. Raw Material	B. Energy	C. Transport	D. Products	E. Services		

Final Consumption
Equipment
Structures
Intellectual Property

The "outputs" of these sectors...

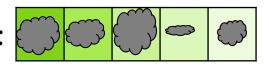


Inter-industry purchases of goods & services used within a year

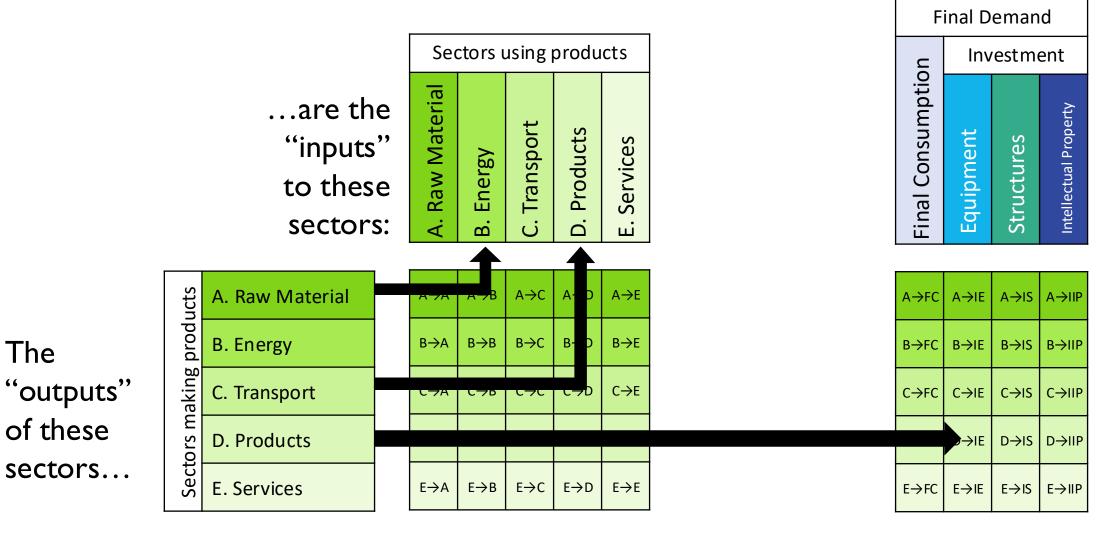


Final Demand of goods & services

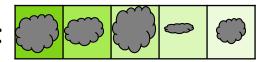
...which emit:



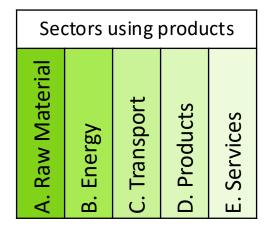
Environmentally-Extended Input Output (EEIO)



...which emit:

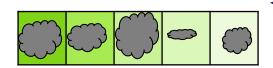


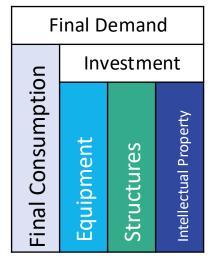
Environmentally-Extended Input Output (EEIO)



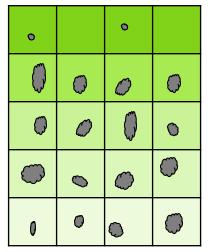
Sectors making products	A. Raw Material	
	B. Energy	
	C. Transport	
	D. Products	
	E. Services	

A→A	A→B	A→C	A→D	A→E
B→A	в→в	в→с	B→D	B→E
C→A	С→В	C→C	C→D	C→E
D→A	D→B	D→C	D→D	D→E
E→A	E→B	E→C	E→D	E→E



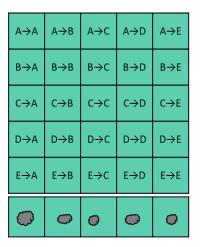


Calculate embodied emission footprints

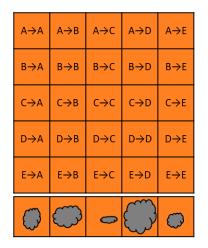


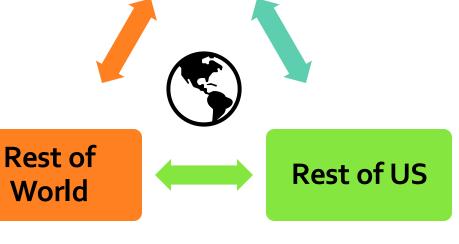


Connect multiple regions together through trade



Maine





A→A	A→B	A→C	A→D	A→E
в→А	B→B	в→с	B→D	B→E
C→A	C→B	C→C	C→D	C→E
D→A	D→B	D→C	D→D	D→E
E→A	E→B	E→C	E→D	E→E
			0	

CBEI Current Challenges

Government Economic Data

Detailed US Input-Output Tables only published every five years High-level Environmental Data

US EPA proposed on Sept 12th to end GHG Reporting Program **EEIO Model**

US EPA ended
USEEIO on Sept 30th
but!
will be kept alive at
cornerstonedata.org

