

CORONAVIRUS PANDEMIC & SUPPLY CHAINS + BRIEF WILDFIRE OUTLOOK



Monika Stoeffl, California Resiliency Alliance
June 11, 2020 - San Francisco Lifelines Council





Aviation - The Hidden Side Effects



Food Supply Chain



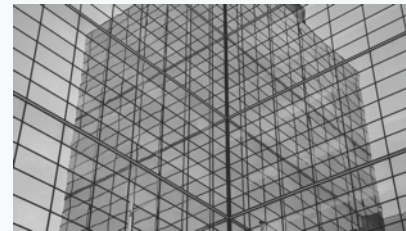
Commodities Supply Chain



Pharmaceutical Supply Chain



PPE Supply Chain



Converging & Concurrent Events



Wildfire Outlook

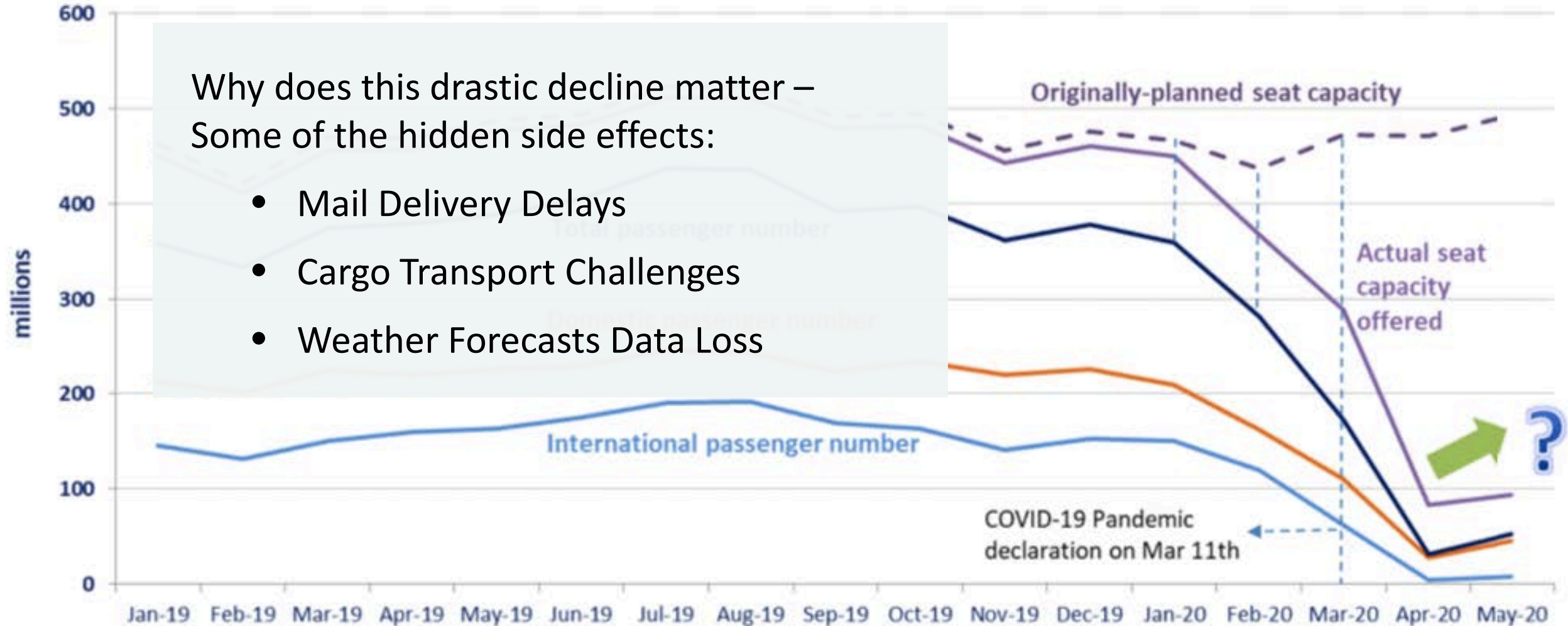
Aviation – Hidden Side Effects



Aviation & Hidden Side Effects

Why does this drastic decline matter –
Some of the hidden side effects:

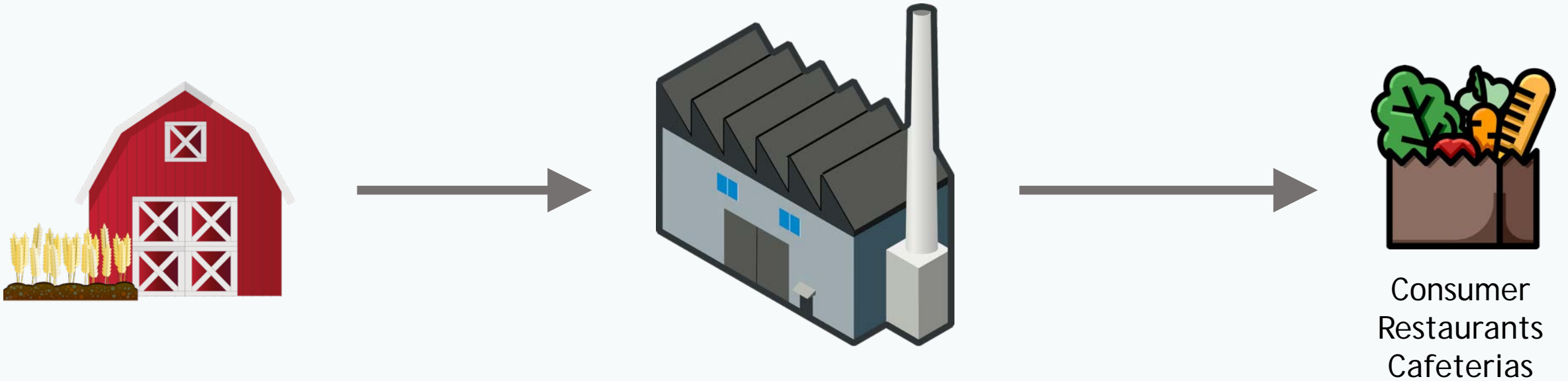
- Mail Delivery Delays
- Cargo Transport Challenges
- Weather Forecasts Data Loss



Food Supply Chain



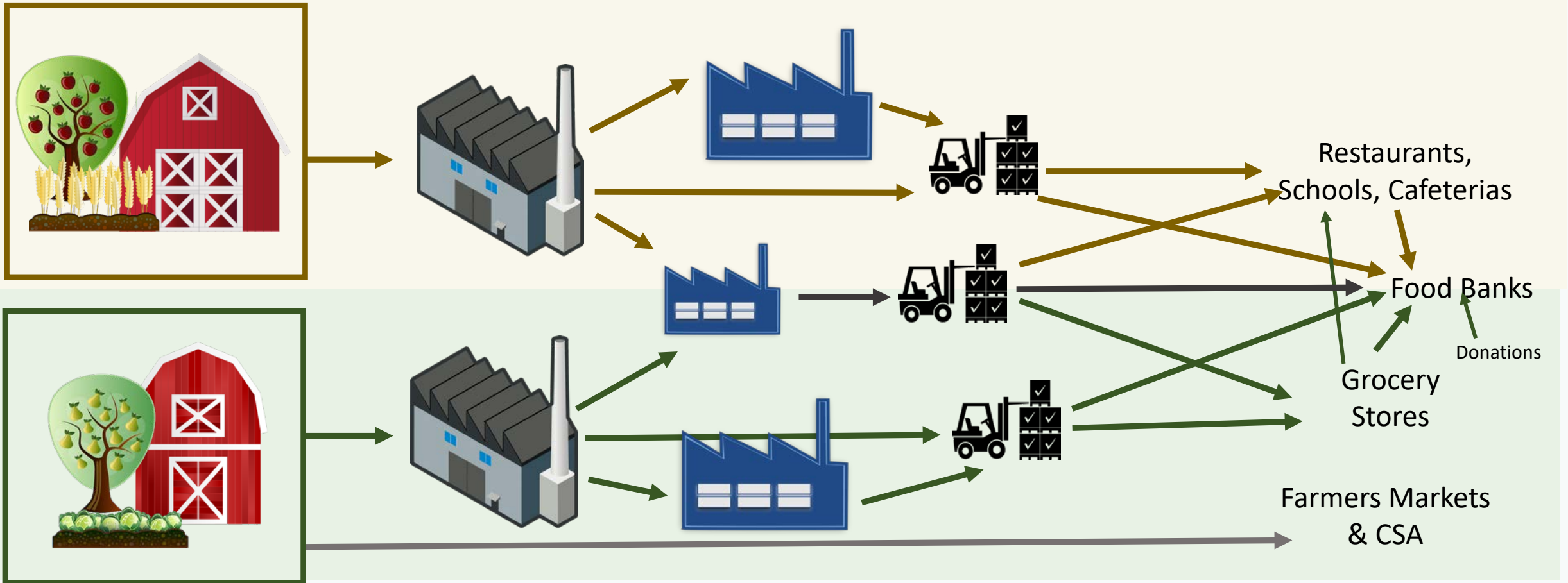
Food Supply Chain – Traditional Model



Food Supply Chains – Flushed Out, Yet Still Simplified

Agriculture

Food Manufacturing, Packaging, & Distribution

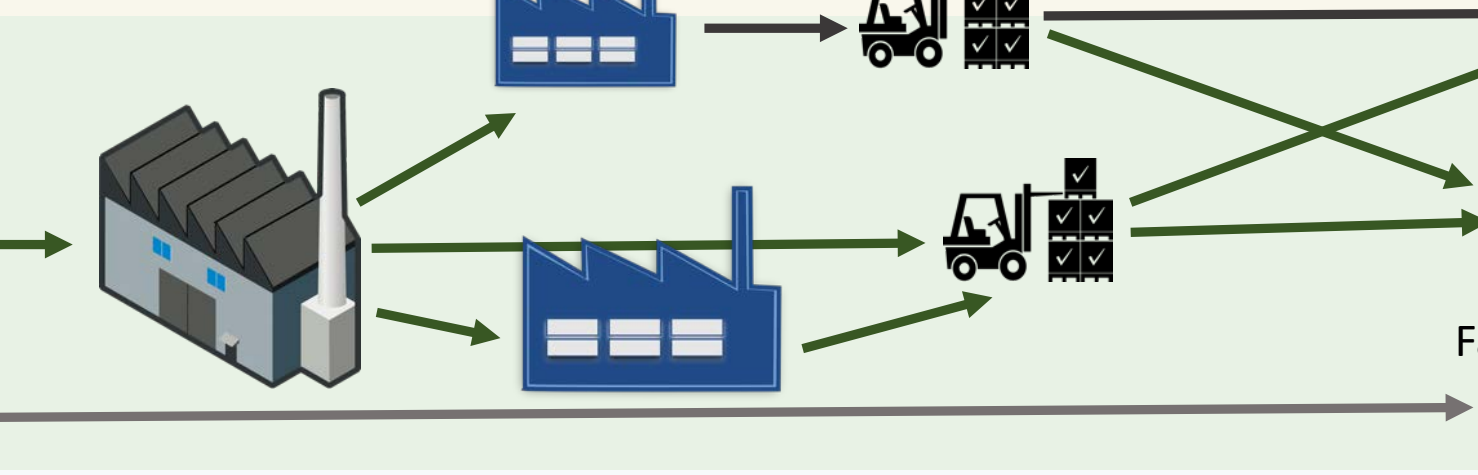
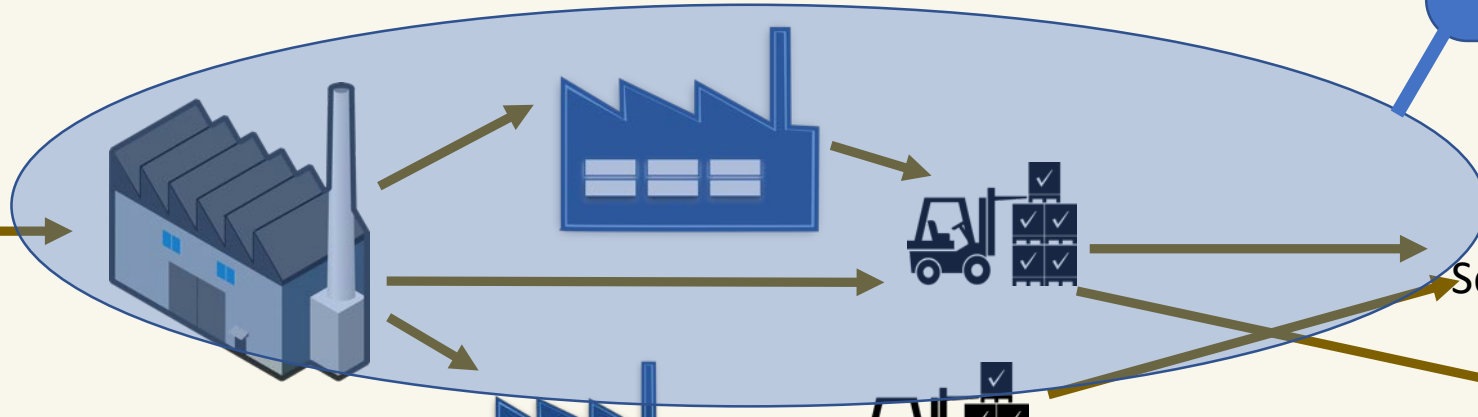


Food Supply Chains – Flushed Out, Yet Still Simplified

Agriculture



Food Manufacturing, Packaging, & Distribution



Not labeled and packaged for sale in retail

Restaurants, Schools, Cafeterias

Food Banks

Donations

Grocery Stores

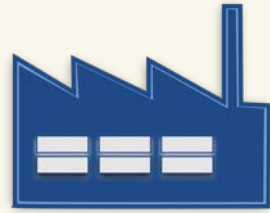
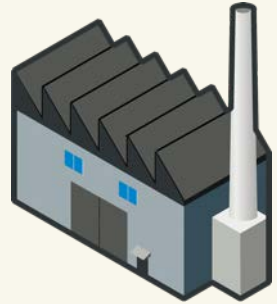
Farmers Markets & CSA

Food Supply Chains – Flushed Out, Yet Still Simplified

Agriculture

Food Manufacturing, Packaging, & Distribution

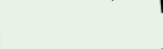
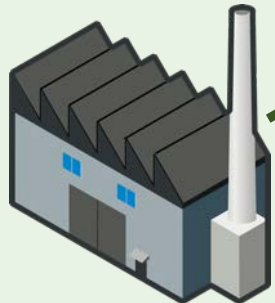
Import / Export



Restaurants,
Schools, Cafeterias



Food Banks



Grocery
Stores



Farmers Markets
& CSA

Donations

Restaurants,
Schools, Cafeterias

Food Banks

Grocery
Stores

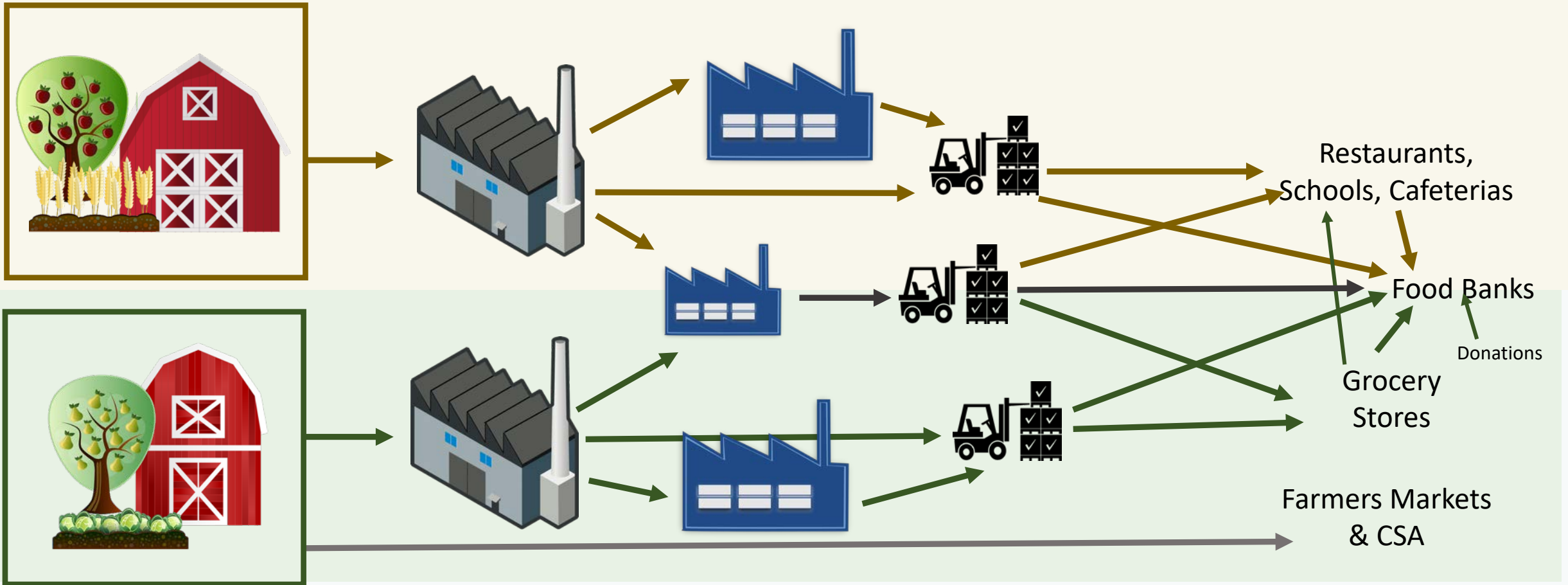
Farmers Markets
& CSA

Food Supply Chains – Flushed Out, Yet Still Simplified

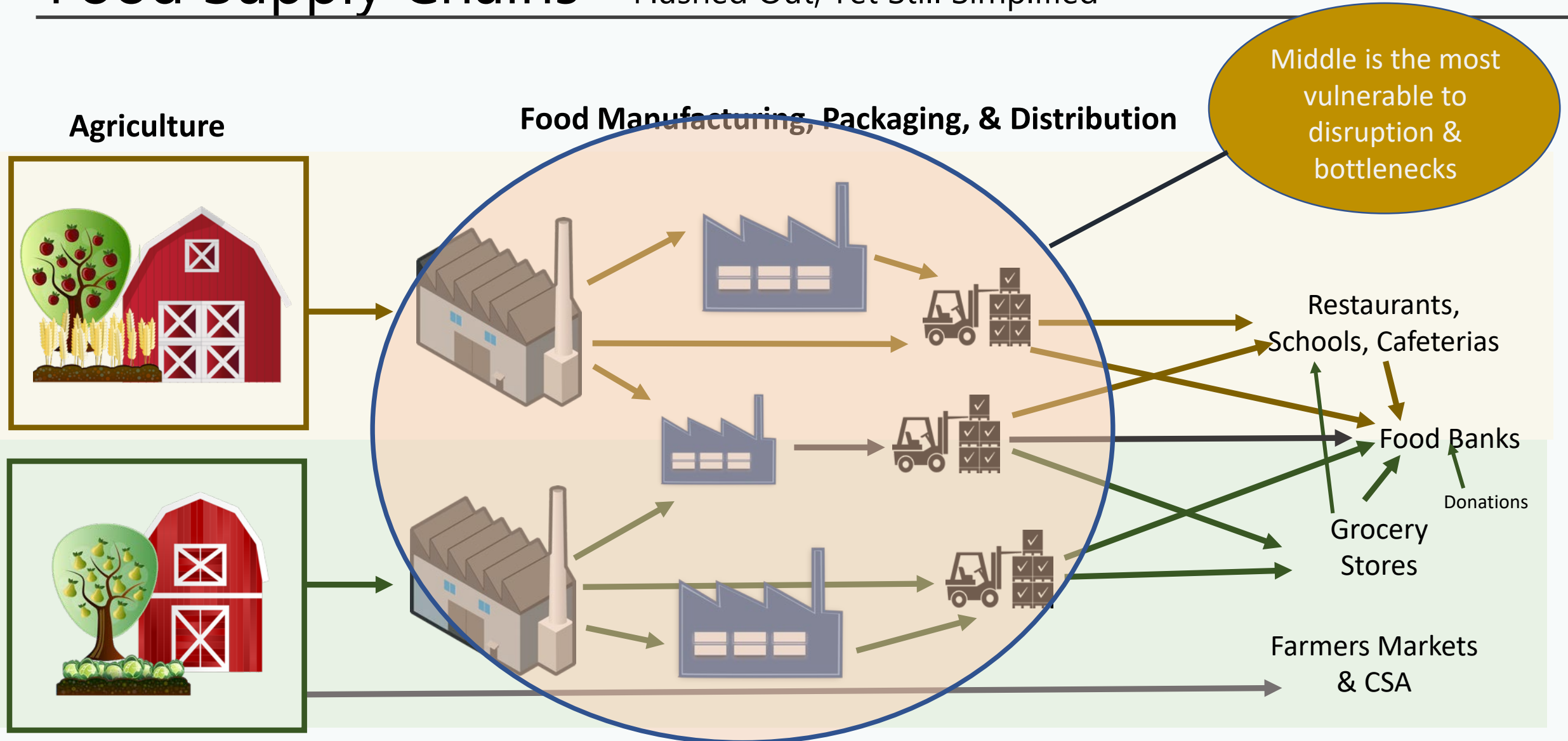
↓ ↓ ↓ ↓
Agriculture

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Food Manufacturing, Packaging, & Distribution

Dependencies on other infrastructures



Food Supply Chains – Flushed Out, Yet Still Simplified



Food Supply Chain – Bay Area Grocery Distribution

Five Principal Sources of Grocery for the Bay Area:

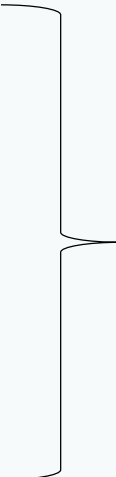
Albertsons (Safeway): 24 to 26%

Super Store Industries: 21 to 23%

C&S Wholesale: 11 to 13%

UNFI (Supervalu): 11 to 13%

Walmart: 10 to 12%

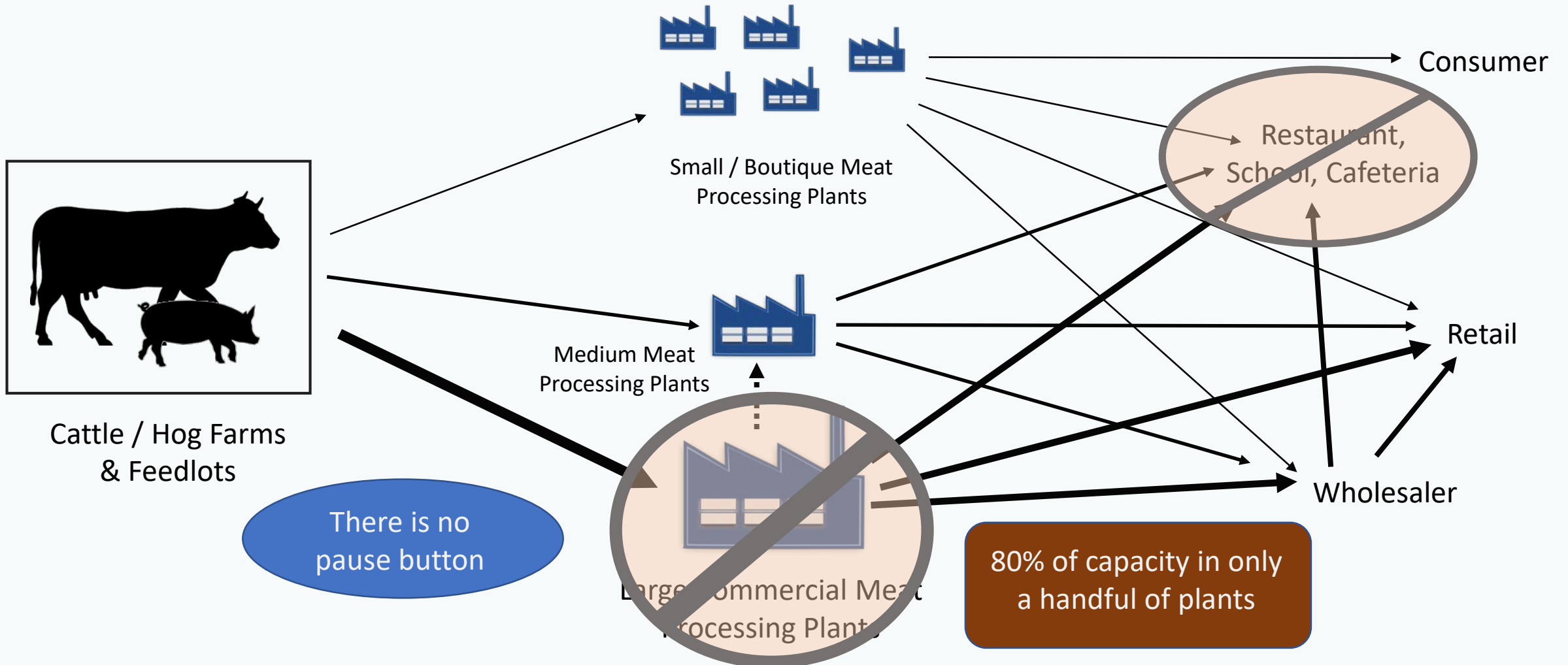


about 77 to 87 % of all groceries
through 5 Distribution Centers

“Western U.S. cities (along with Alaska and Hawaii) pose unique supply chain challenges because of their geographic isolation from other and their relatively high self-sufficiency, which creates greater challenges to adapting damaged supply chains if these cities' local logistics are disrupted by COVID-19.”

– Northern Arizona University les FEWSION Project

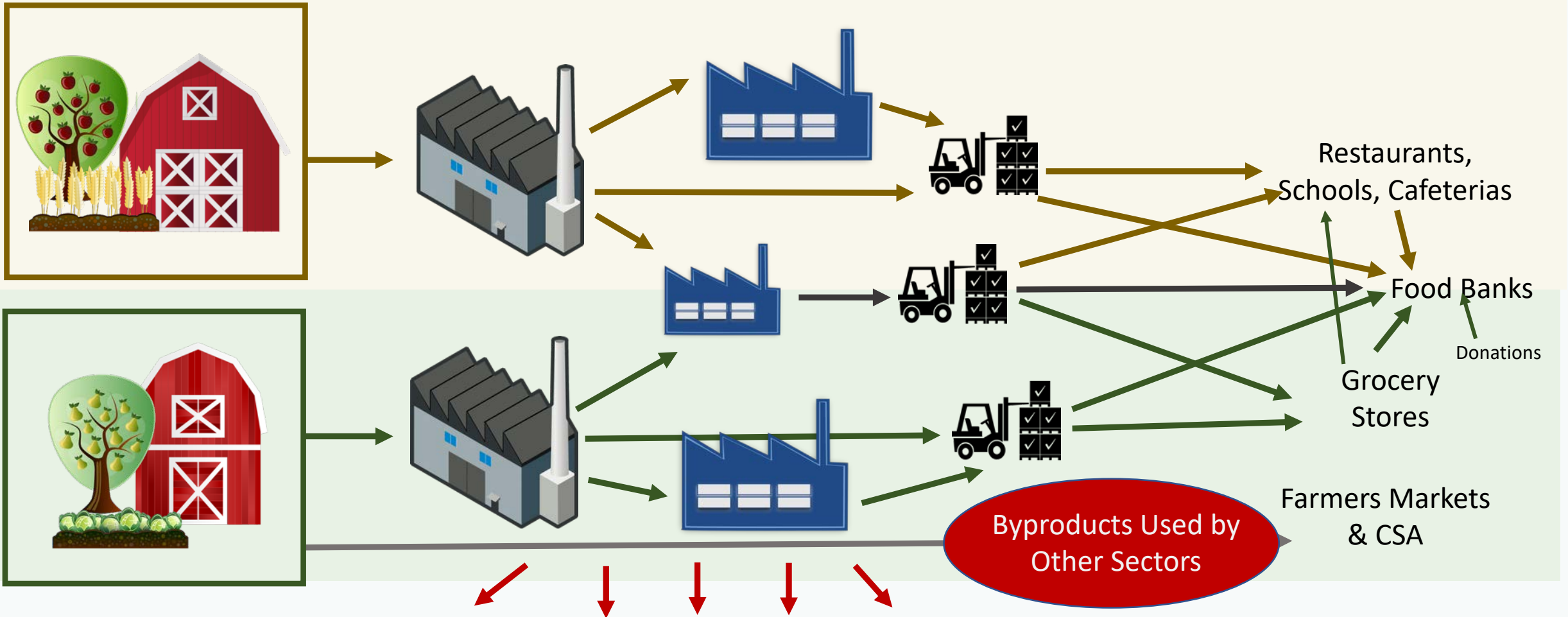
Food Supply Chain – Meat Supply Chain (simplified)



Food Supply Chains – Flushed Out, Yet Still Simplified

Agriculture

Food Manufacturing, Packaging, & Distribution



Commodities Supply Chain



Commodities Supply Chain

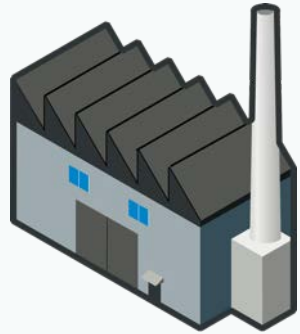


Ordering a
to-go lunch
with a side of
toilet paper

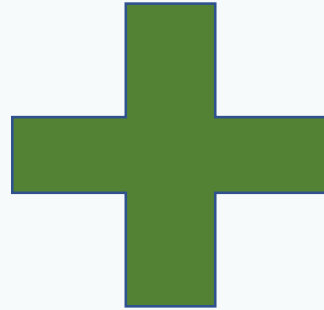
Pharmaceutical Supply Chain



Pharmaceutical Supply Chain – Traditional View



Manufacturing

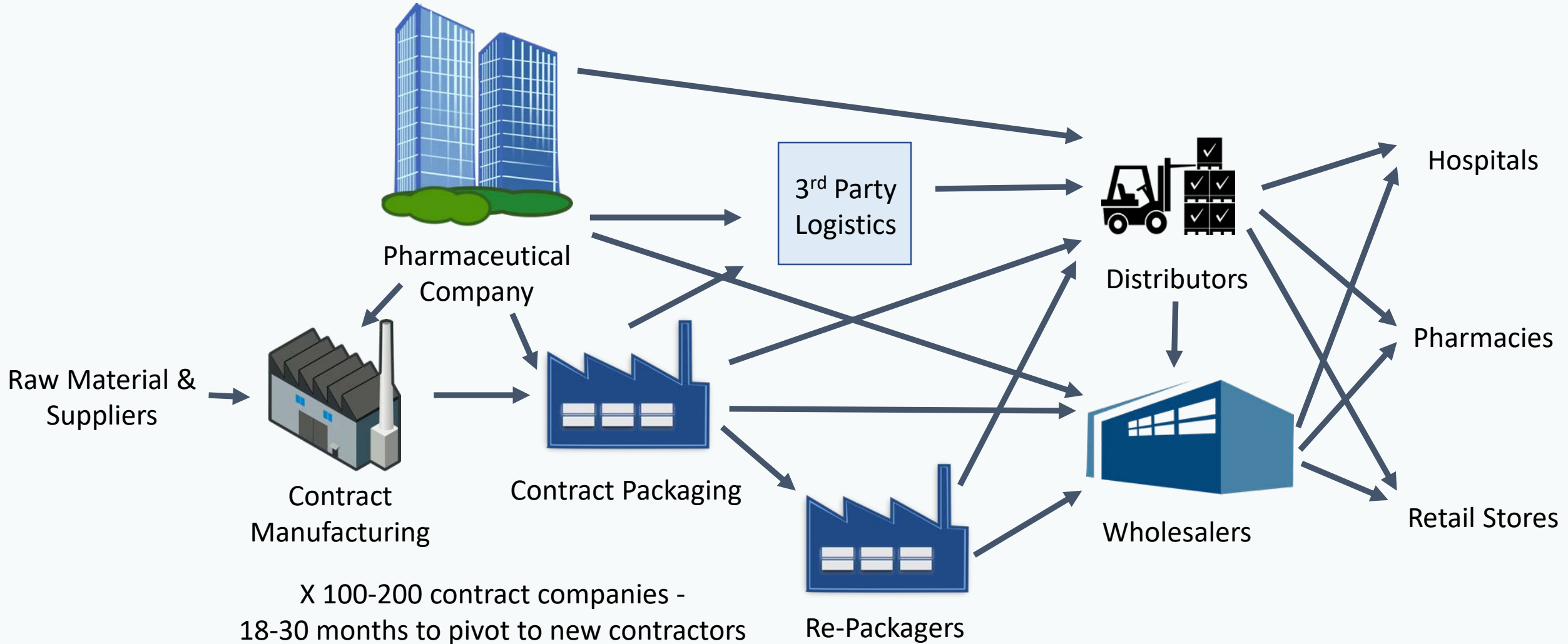


Hospital,
Pharmacy,
Retail



Consumer

Pharmaceutical Supply Chain



Pharmaceutical Supply Chain



- Supply Chain Spans the Globe
- Concentration on product manufacturing in single site/region
 - Around 90% of the antibiotics used in the United States come from China.
 - Early March FDA identified about 20 drugs, which solely source their active pharmaceutical ingredients or finished drug products from China.
 - The largest domestic sources and distributors of pharmaceuticals are Los Angeles, CA, Chicago, IL, Memphis, TN, Columbus, OH, and Phoenix, AZ
- Export Restrictions

PPE & Safety Supplies Supply Chain

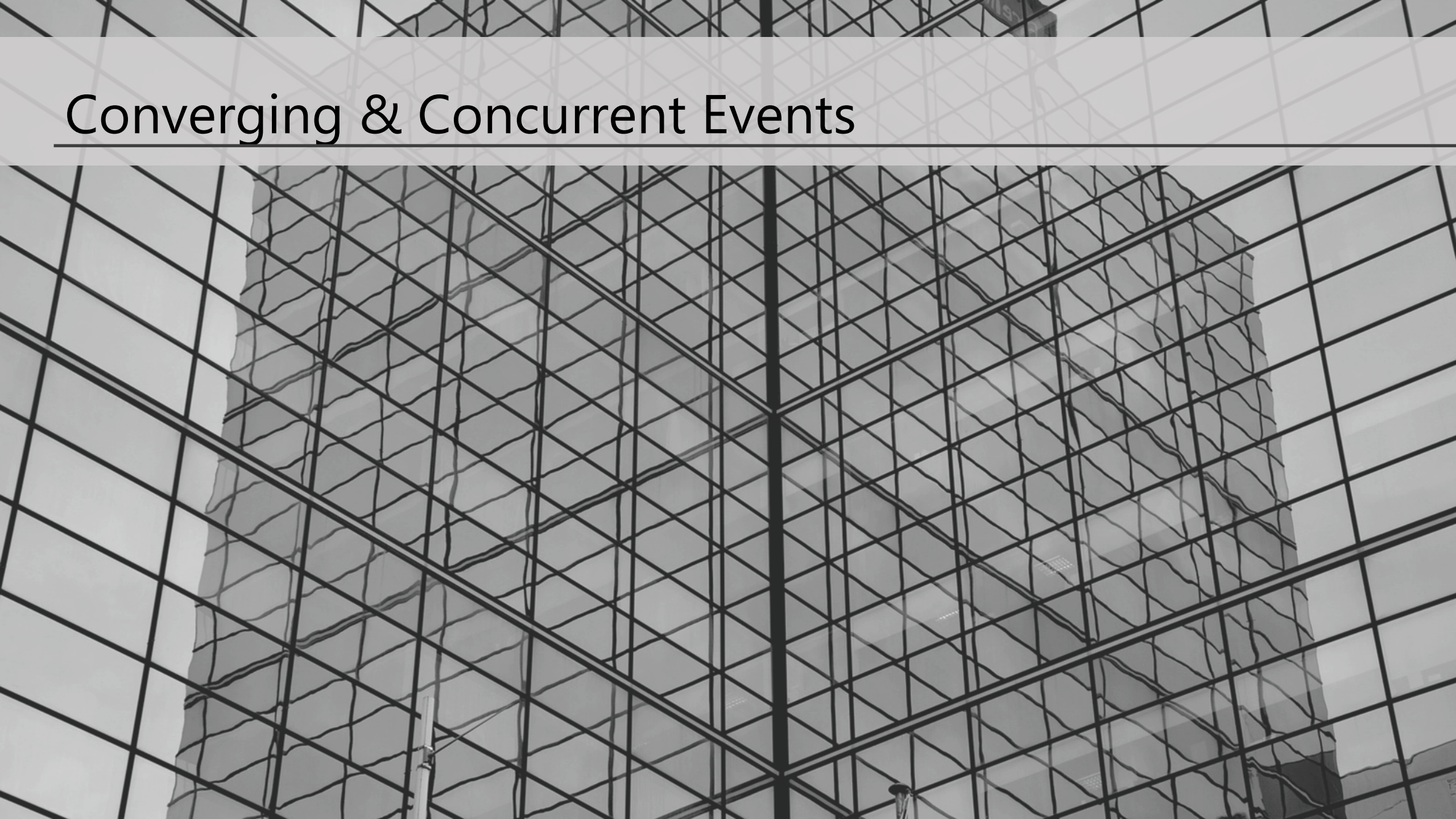


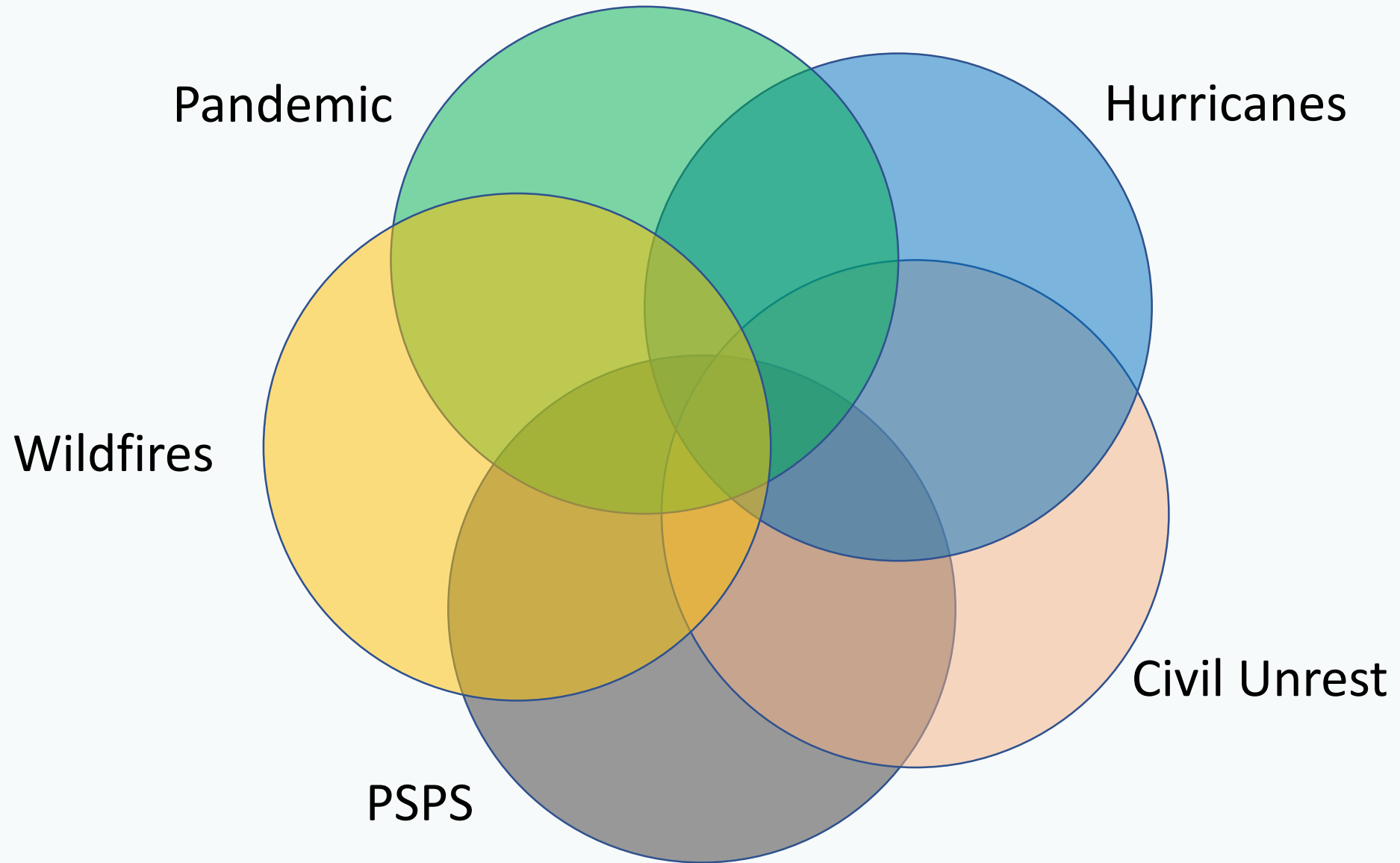
PPE Supply Chain

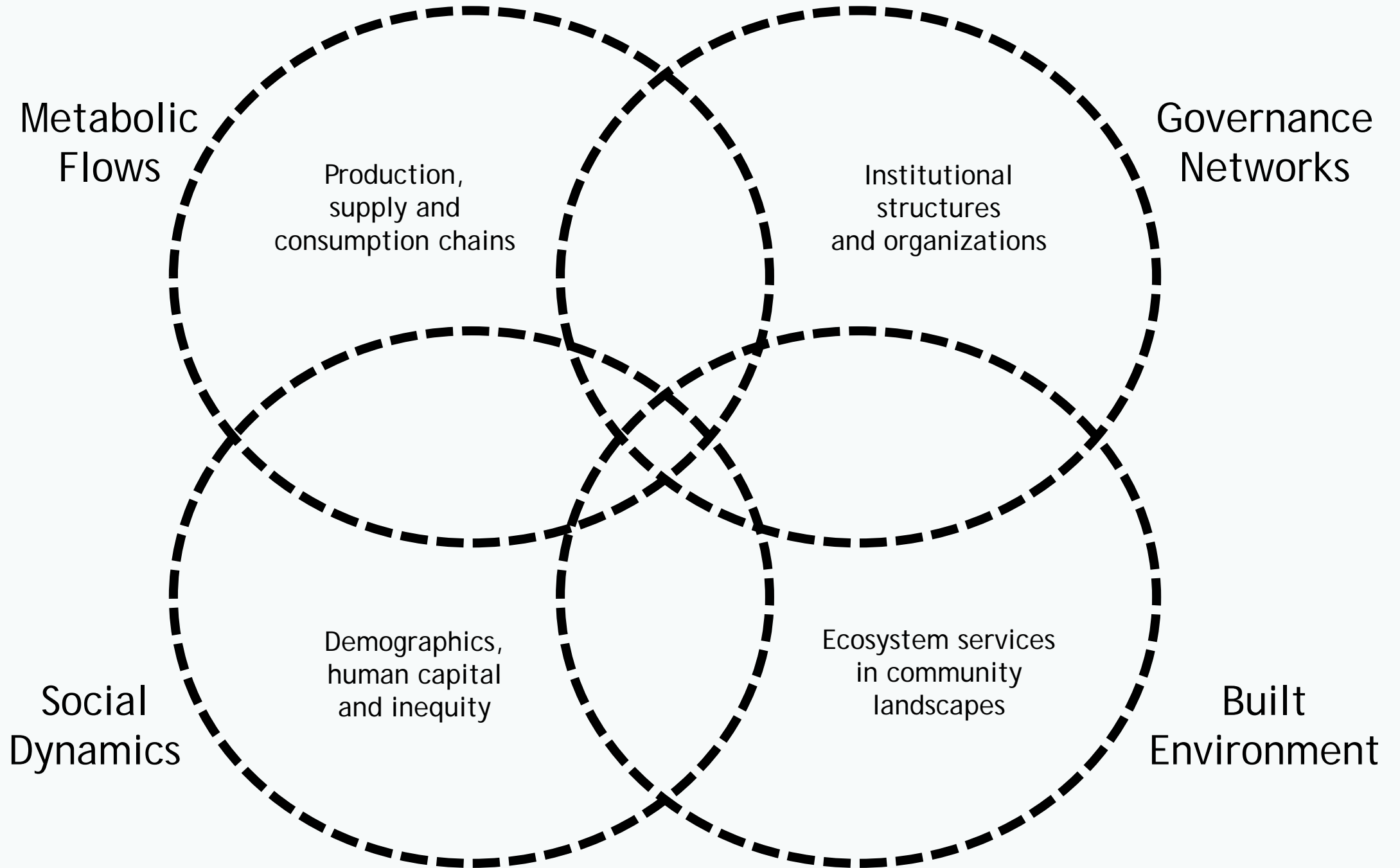


- Surge in Demand
- Open Market vs Coordinated Distribution
- Concentration in Manufacturing
- Federal Certification Requirements
- Counterfeit Products
- Repurposing Manufacturing

Converging & Concurrent Events









Wildfire Outlook

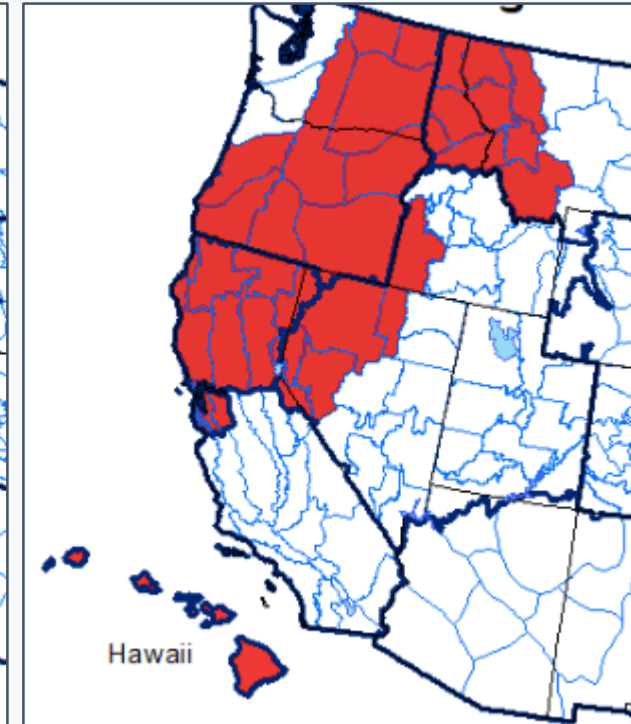
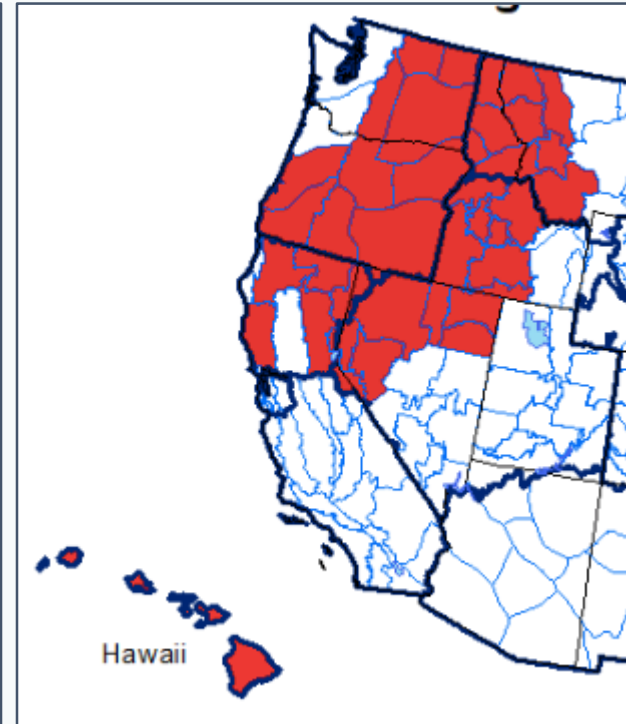
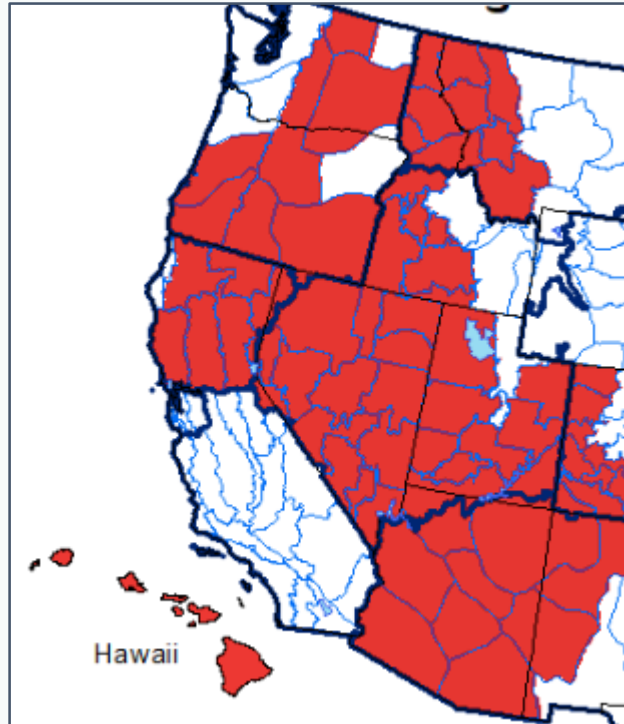
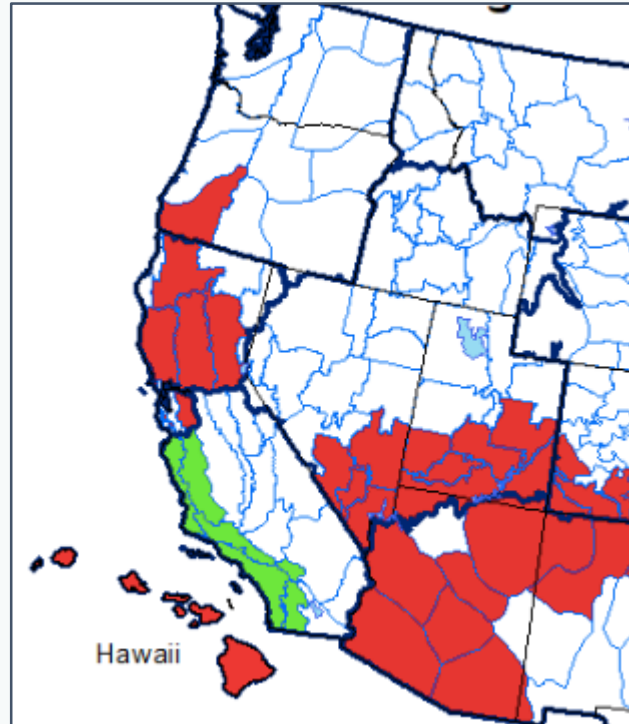
Wildfire Outlook

June

July

August

September

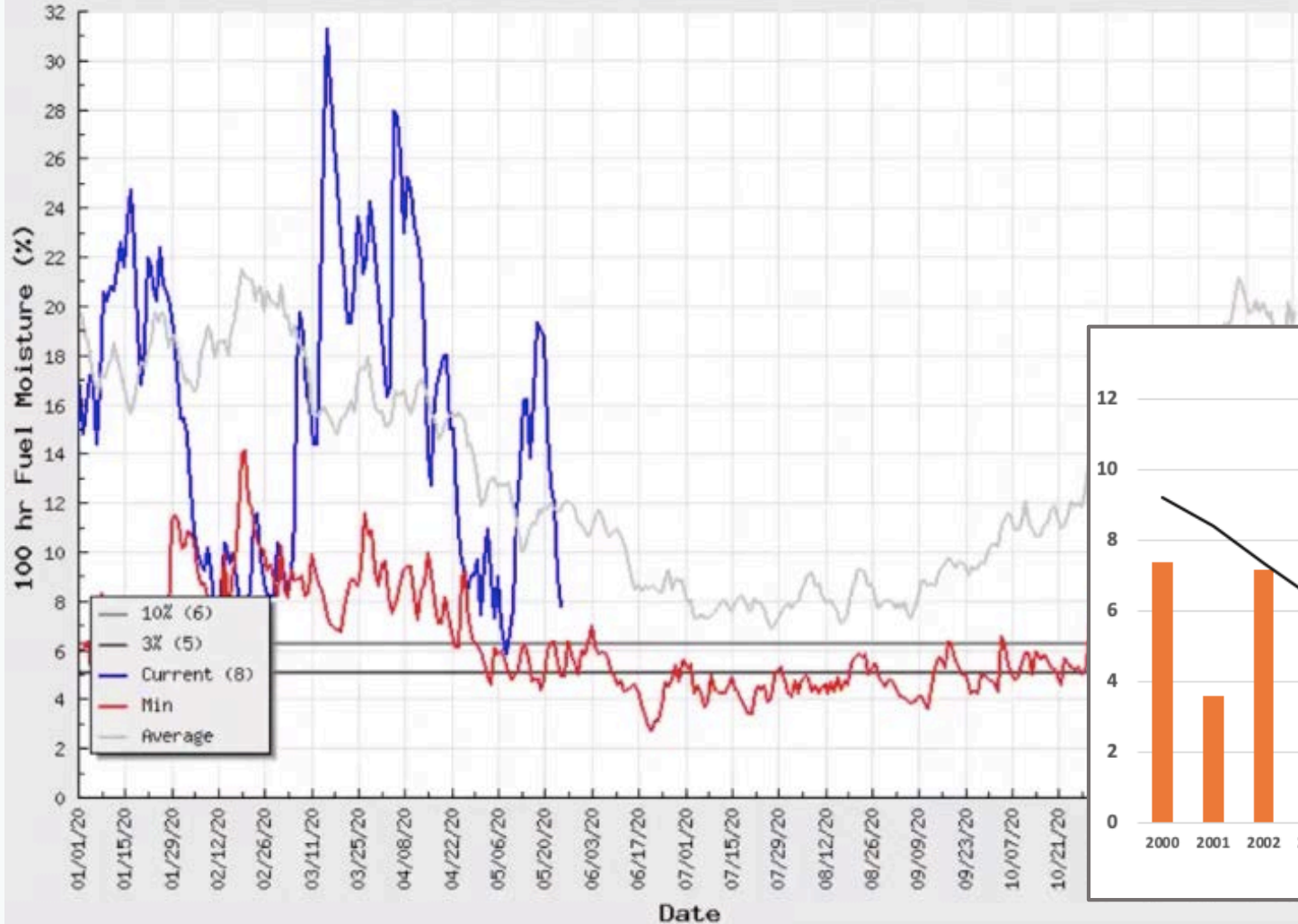


■ Above Normal ■ Below Normal □ Normal

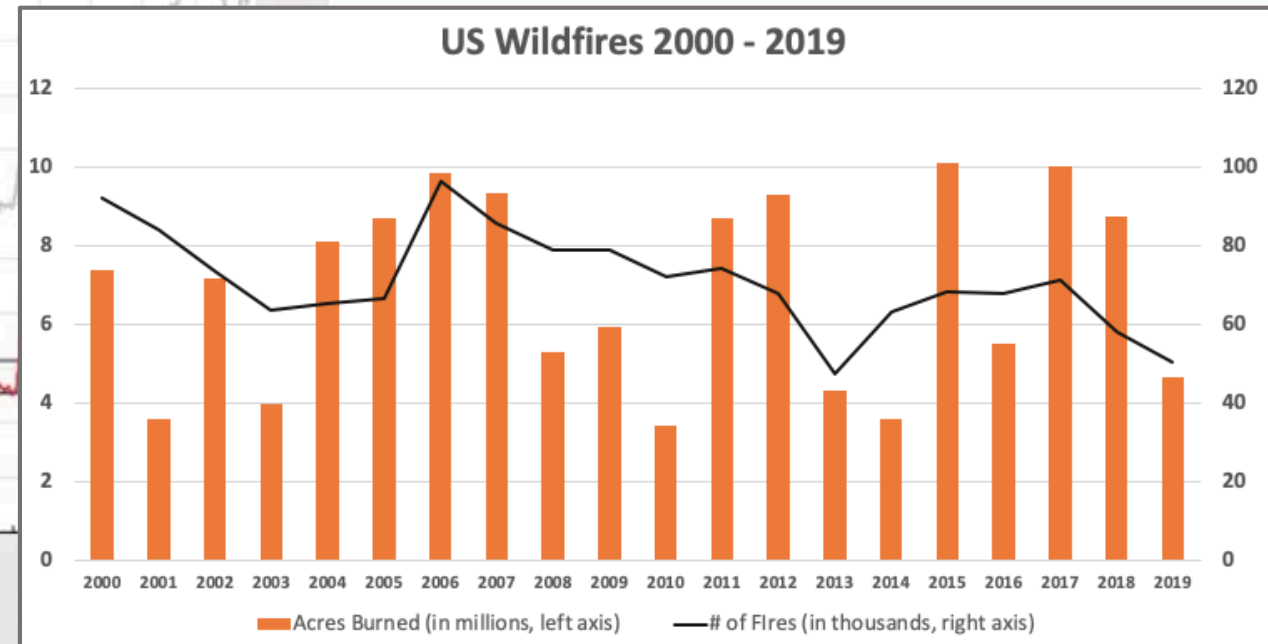
Wildfire Outlook - Fuel

NC03B - Diablo-Santa Cruz Mtns

Valid Date: 25-May-2020



CRA Summer Outlook
Webinar Recording (May 26)
<https://caresiliency.org/webinar/summer-outlook-webinar-2020/>





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“Crisis can spread globally, and in our modern world they can easily also impact business sectors that at first glance do not seem exposed.”

– Quote from article in the International Journal of Disaster Risk Reduction (2016): *Resilience in a Complex World – Avoiding Cross-Sector Collapse*