A photograph of a beach heavily littered with marine debris, including plastic bottles, tires, and other trash. The ocean and a mountain range are visible in the background under a blue sky with some clouds. A dark blue rectangular box with a white border is overlaid on the center of the image, containing white text.

Business Leadership in Addressing Marine Debris

Steve Russell
American Chemistry Council

Emily Woglom
Ocean Conservancy

July 18, 2017



International Coastal Cleanup

31 Years, 153 Countries, Global Impact



12M
Volunteers



228M
Pounds of trash



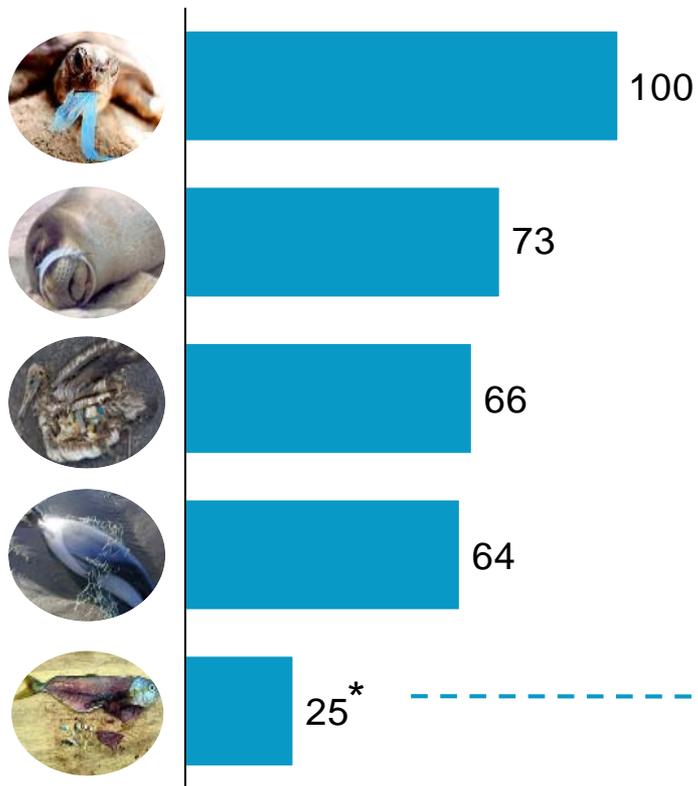
350K
Miles



Nearly 700 marine species have been affected

Marine species impacted by plastic

% of total



SOURCE: 2012 Convention on Biological Diversity report; Beorger et al. 2010; Davison and Asch 2011; Rochman et al. 2016

*25 percent of individual fish sampled at markets contaminated

TODAY: 900 million tons fish

170 million
tons plastic



Plastics could impact global food chain

25% of fish sold for human consumption found contaminated

Market fish with plastics in gut, % of sample total

Indonesia



28%

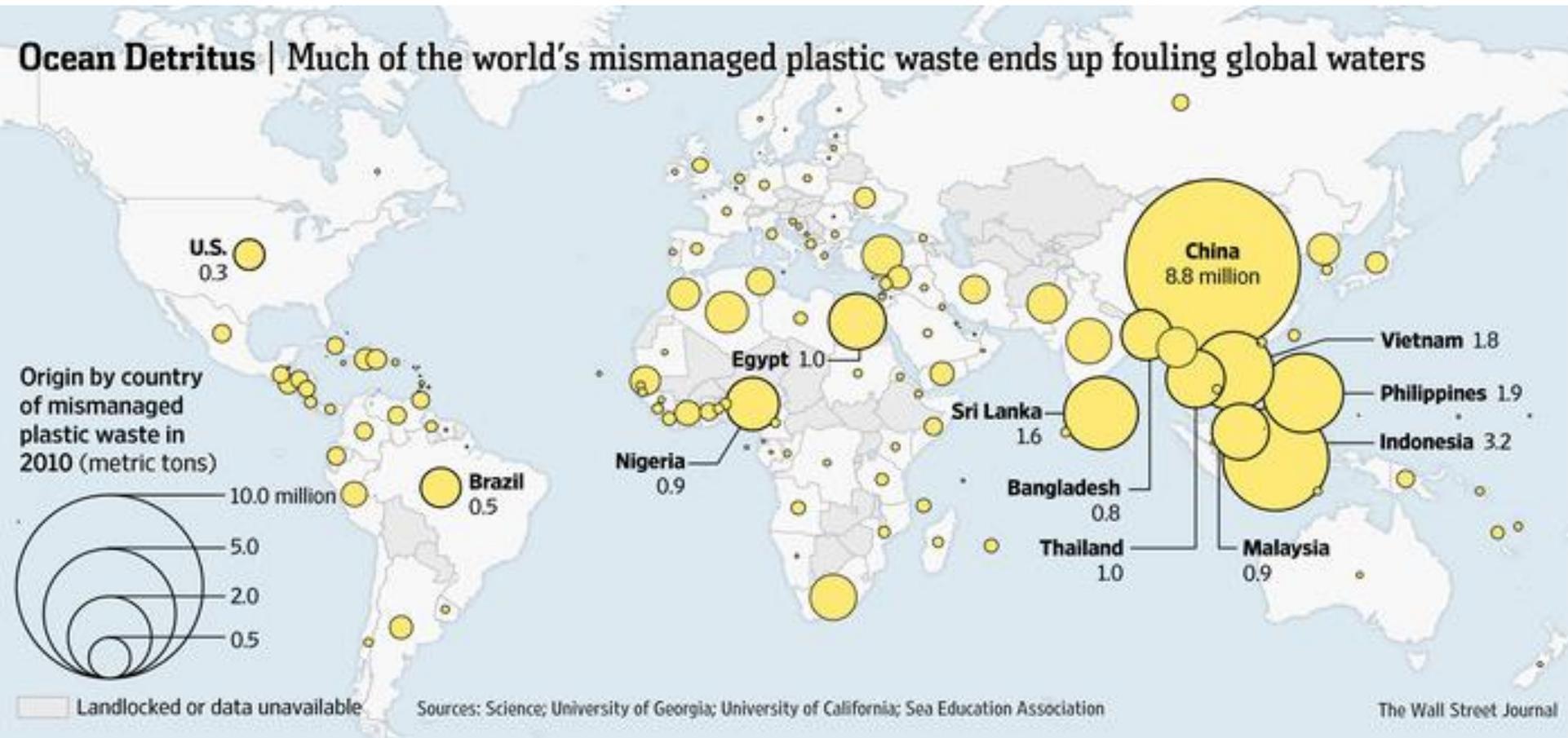
California



25%

8 MMT of plastic waste enters the ocean every year

Inputs currently concentrated in rapidly developing economies



Collaborating for Trash Free Seas

Grow strategic partnerships, build science-based solutions



Procter & Gamble



KEEP AMERICA BEAUTIFUL



Advisory members



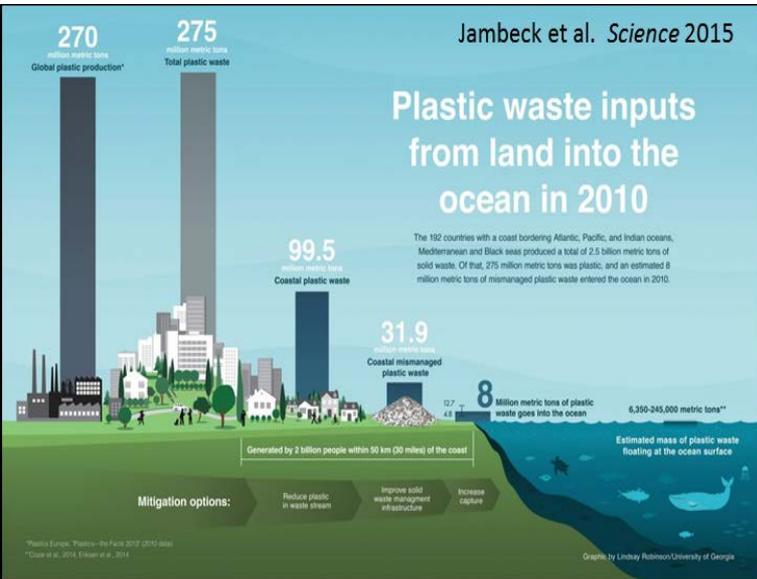
REDISA
RECYCLING AND ECONOMIC DEVELOPMENT
INITIATIVE OF SOUTH AFRICA



Our goal: to **sustainably reduce** the amount of plastic waste leaking into the ocean annually by **50 percent globally** by **2025**

Trash Free Seas Alliance®

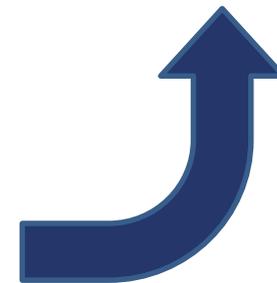
Building on the Foundation of Science



THE NEXT WAVE

Investment Strategies for Plastic Free Seas

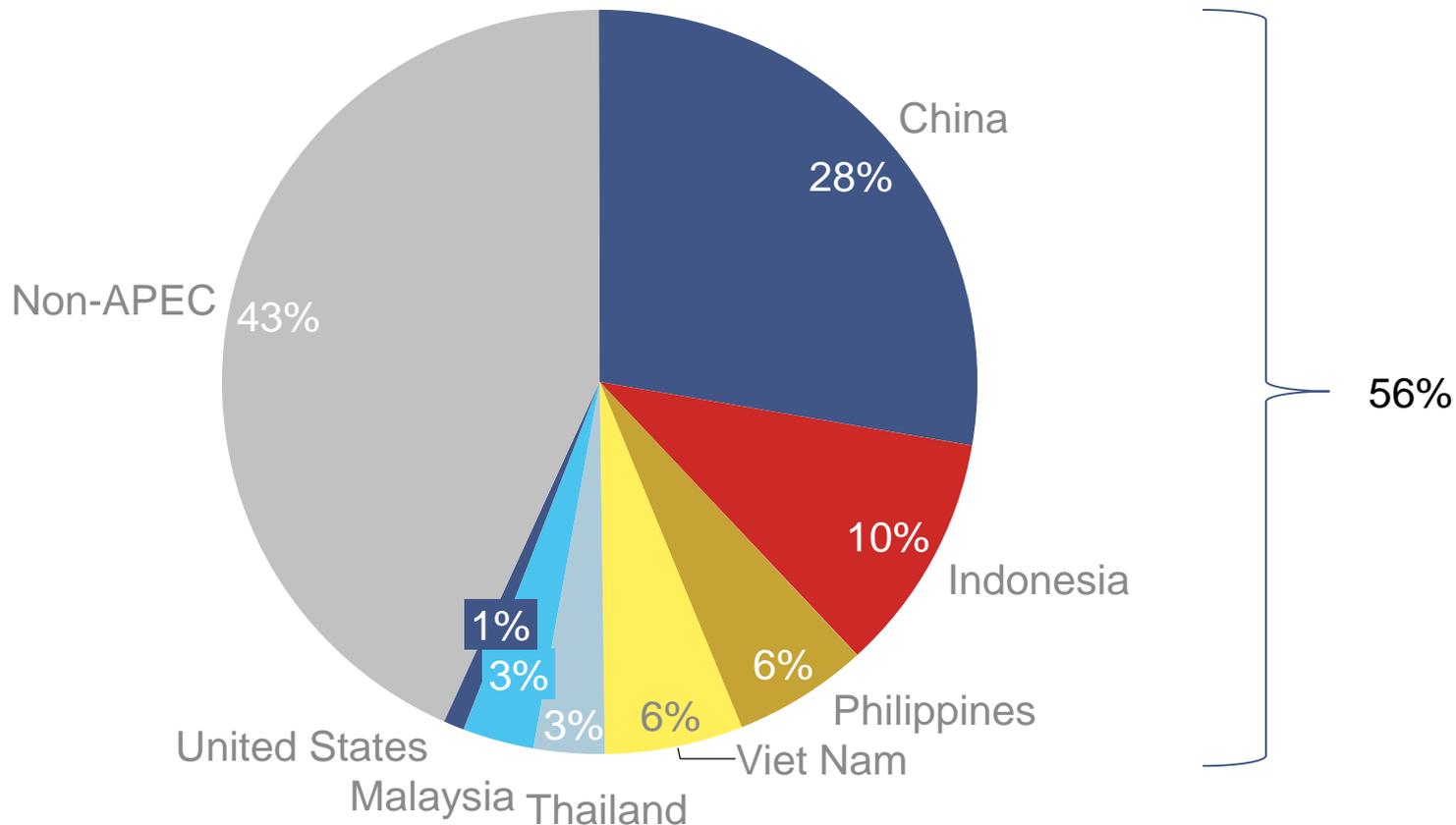
Trash Free Seas Alliance Ocean Conservancy



More than half of plastic leakage occurs in the Asia Pacific

Source of ocean plastics by country¹

Share of annual plastic marine debris, 2010



¹ Only includes APEC member economies in the top 20 global source countries

Source: *Science*; Team analysis

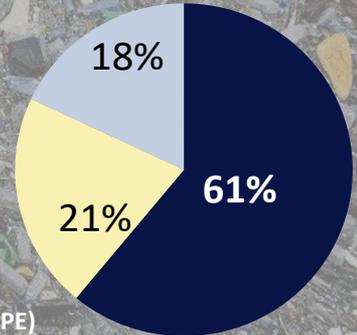
Two primary factors for ocean plastic pollution:

1. Insufficient waste collection; and/or
2. Lack of value in certain types of plastics



% total plastic waste leakage¹

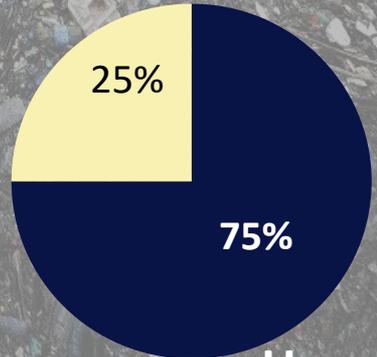
High (PET, HDPE)



Medium (PS, LDPE)

Low Value
(Film, composites)

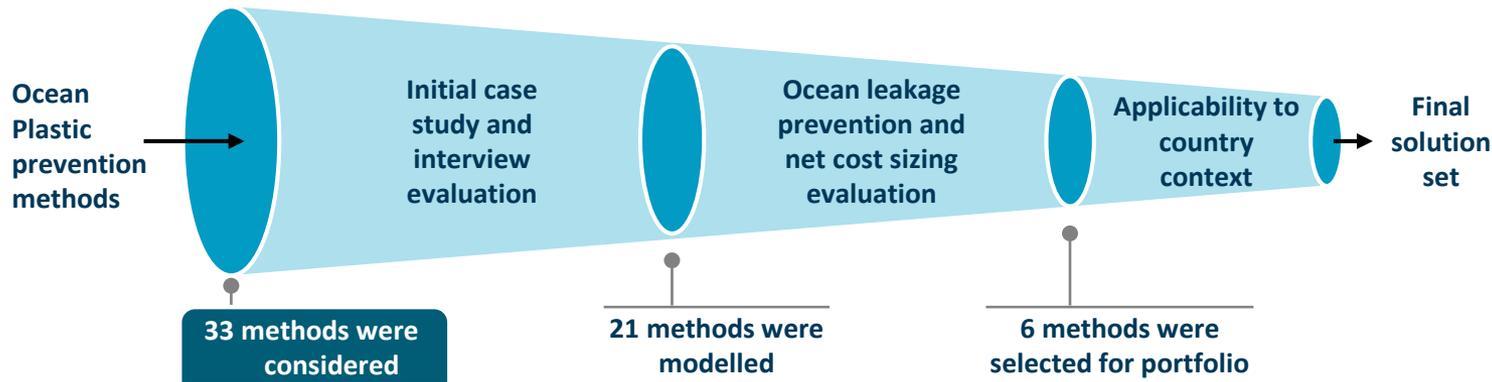
Collected



Uncollected

¹ Average for China, Indonesia, Philippines, Vietnam, Thailand

Evaluated 33 ocean plastic prevention methods



Reduction / elimination

- PAYT - Waste disposal fees
- Material design specifications
- Product/material bans (bag bans)
- Resin/product industry fees
- Extended producer responsibility

Collection

- Increased collection
- Street level refuse bins
- Low value plastic subsidy
- Drop off centers

Recycling

- Mandatory recycled content within products
- Mandatory recycling for industry
- Recycling MRFs Container deposits
- Advance recycling/disposal fees
- Consumer recycling campaigns
- Household separation bins
- Waste exchange programs

Conversion/Treatment

- Cement Kiln (RDF)
- Pyrolysis
- Gasification
- Incineration

Mitigation

- Close/cover/mine high risk dump sites
- Haul payment tied to waste drop off points
- Haul truck monitoring devices
- Storm water collection traps
- Littering and dumping fines
- Sewer outfall trash collection units
- Trash surface booms/interceptors/out-of-sea extraction devices
- Beach community clean-ups
- Total daily maximum loads
- Dumpsite fencing
- Dump site bans for poorly located sites
- Dump site bans for specific plastics

Methods were prioritized based on

- largest leakage potential at lowest net cost
- Ease of implementation
- Country relevance

Modeling data was gained from

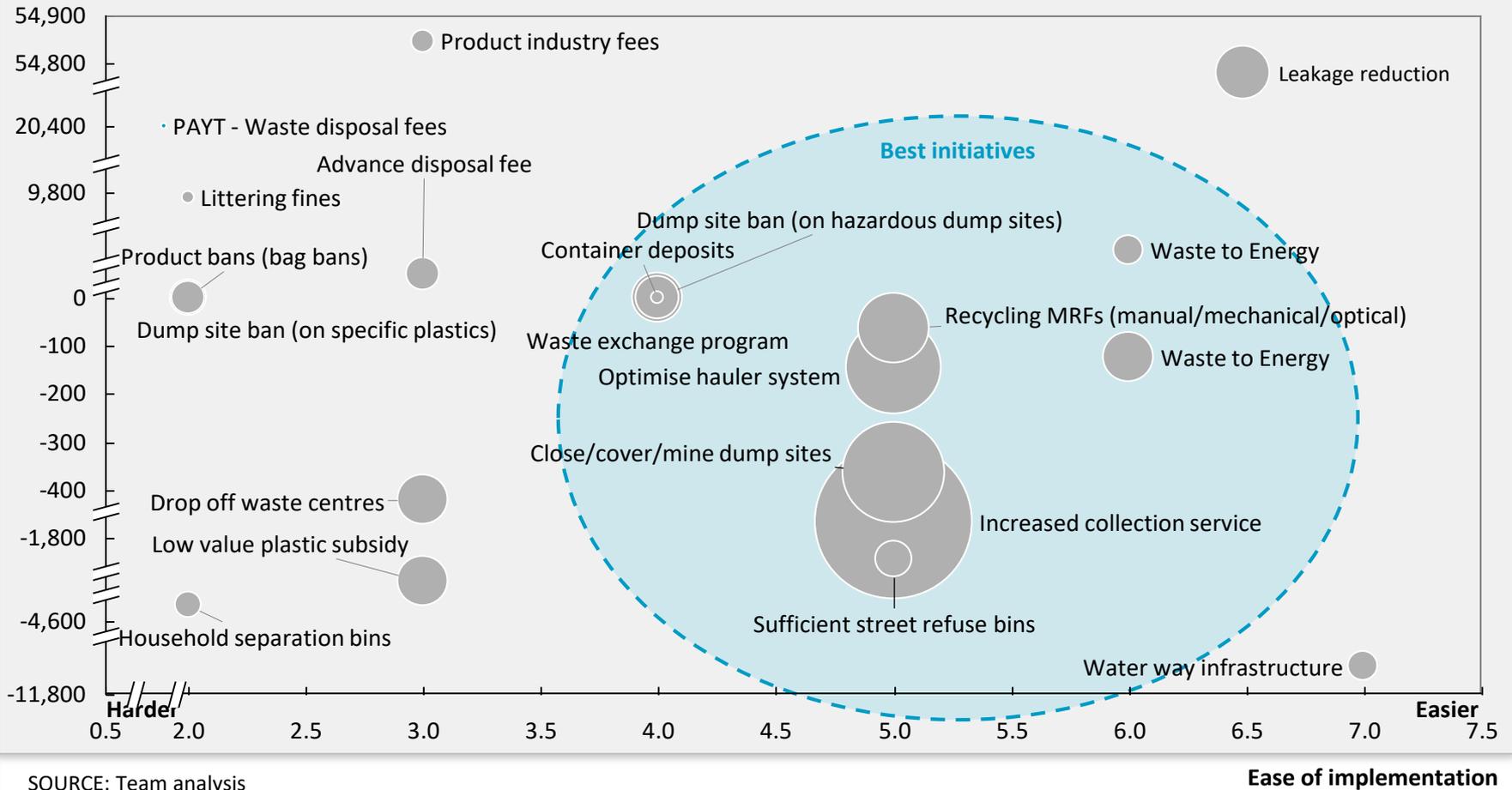
- 22 regional case studies
- 100+ expert consultations
- Due diligence from entrepreneurial business models
- National data from government authorities
- Secondary research based on published white papers

MODELLED 21 LEVERS INDEPENDENTLY OF EACH OTHER BASED ON EASE OF IMPLEMENTATION AND LEAKAGE REDUCTION POTENTIAL

Net benefit

USD per ton of leakage reduced

Stemming the Tide

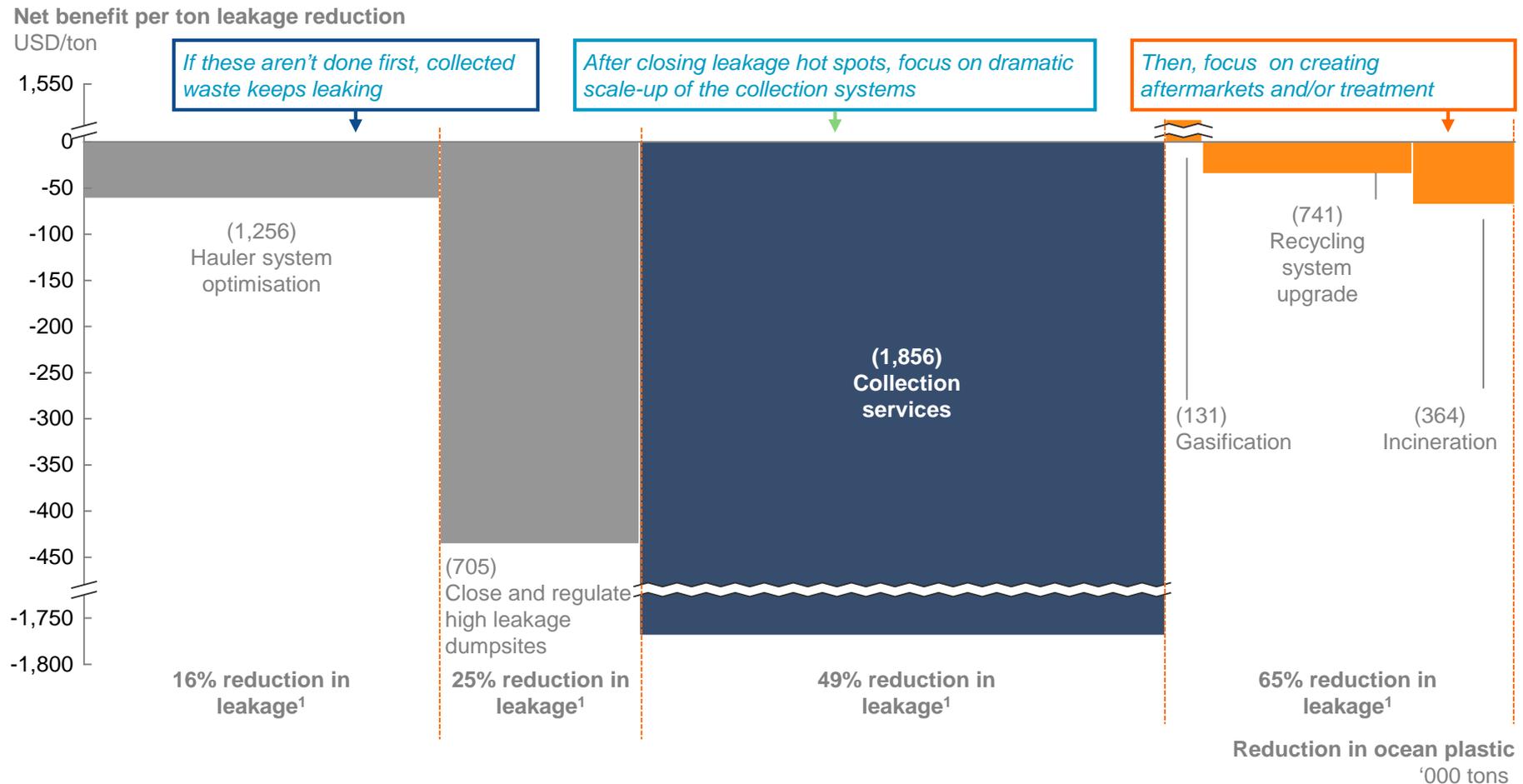


SOURCE: Team analysis

Ease of implementation

Identified that the most effective levers to reduce plastic leakage are in waste collection/management

- Collection
- Treatment
- Mitigation



SOURCE: ICIS; World Cement; Columbia University; China Environment Statistics Yearbook; 100+ expert interviews; press search; Jambeck et al.2015; China Today; World Bank; *Stemming the Tide*



Plastics Industry's Work on Solutions

Steve Russell
Vice President, Plastics Division
American Chemistry Council

Plastics Division Members





U.S. Plastic Manufacturing

Manufacturing renaissance due to increased access to natural gas from shale

Growth in materials & downstream sectors

Lower manufacturing costs encouraging domestic expansion

Our View

- Plastic marine litter a major issue, and it is unacceptable
 - Plastics deliver significant societal benefits:
 - Energy/resource savings, lower GHG emissions
 - Innovations that improve health care, reduce food spoilage & improve quality of life
 - Benefits are lost if plastic litter harms our natural environment
- 

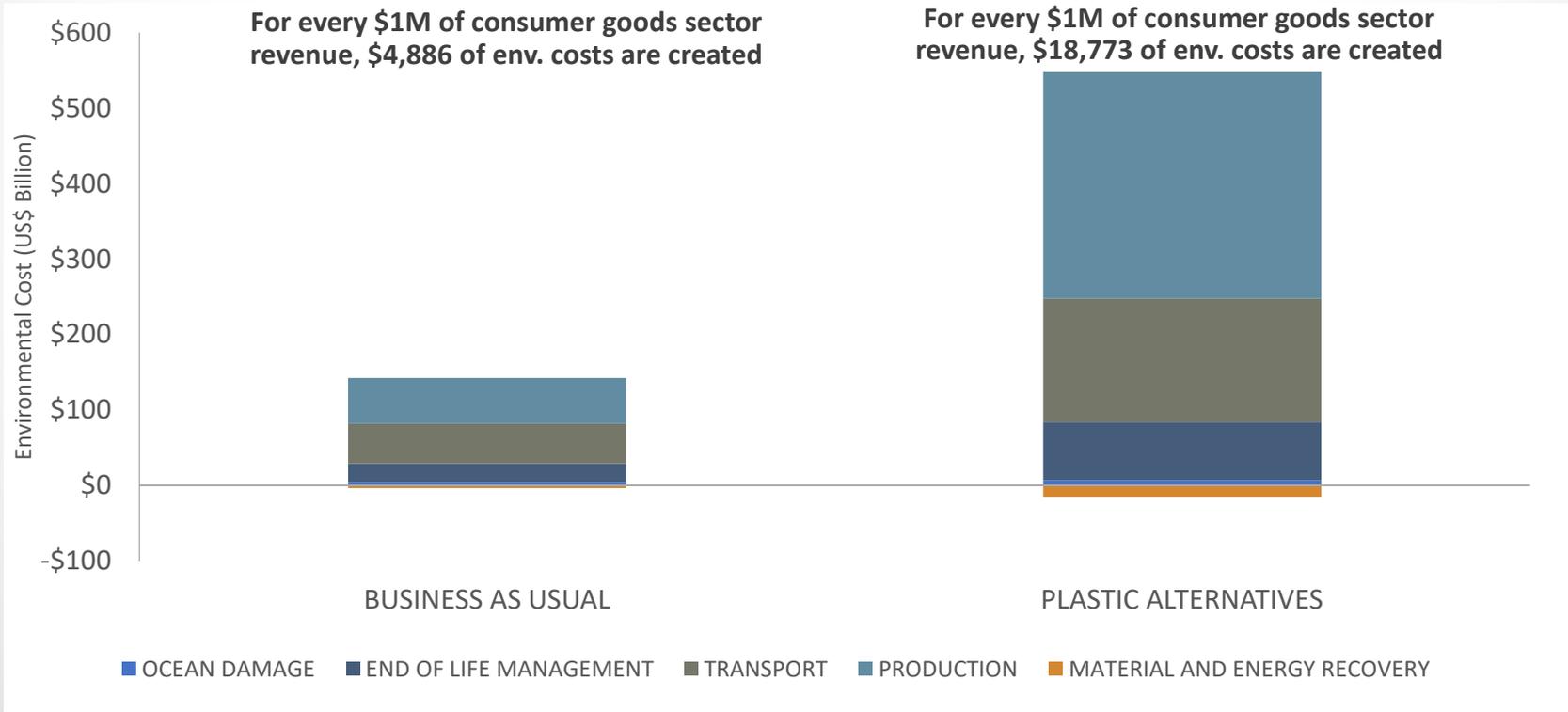
Plastics and Sustainability



The environmental cost to society of plastic use in the consumer goods sector is 3.8 times less than alternative materials

Business as Usual: \$139 Billion

Plastic Alternatives: \$533 Billion



Trucost, Plastics and Sustainability: A Valuation of Environmental Benefits, Costs and Opportunities for Continuous Improvement, July 2016.

Reduced Food Waste



Fresh for 14 days



New potatoes
in-store wastage
DOWN to <1%



Grapes in-store wastage
DOWN by 20%



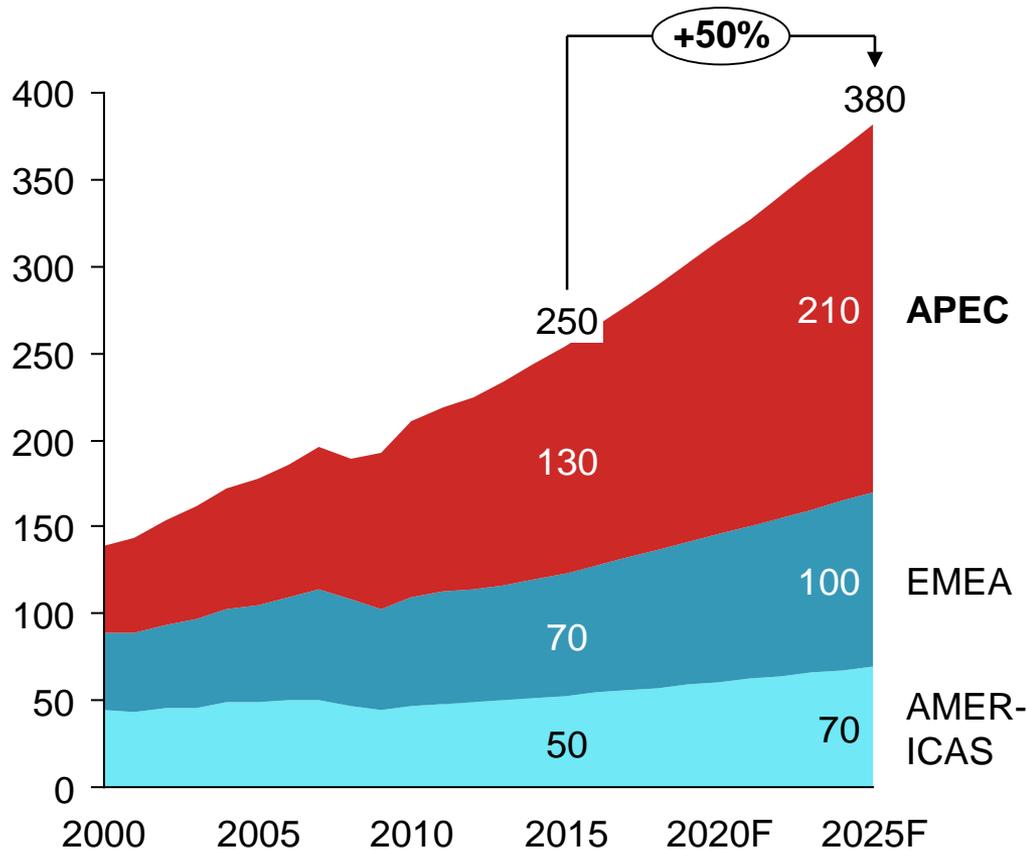
Bunches of identical bananas stored for 7 days loose and in a modified atmosphere bag

Source: Packaging in Perspective, Advisory Committee on Packaging, Supported by INCPEN

Plastic production is forecasted to grow 50% in 10 years, with ocean plastic levels set to reach 250m tons by 2025

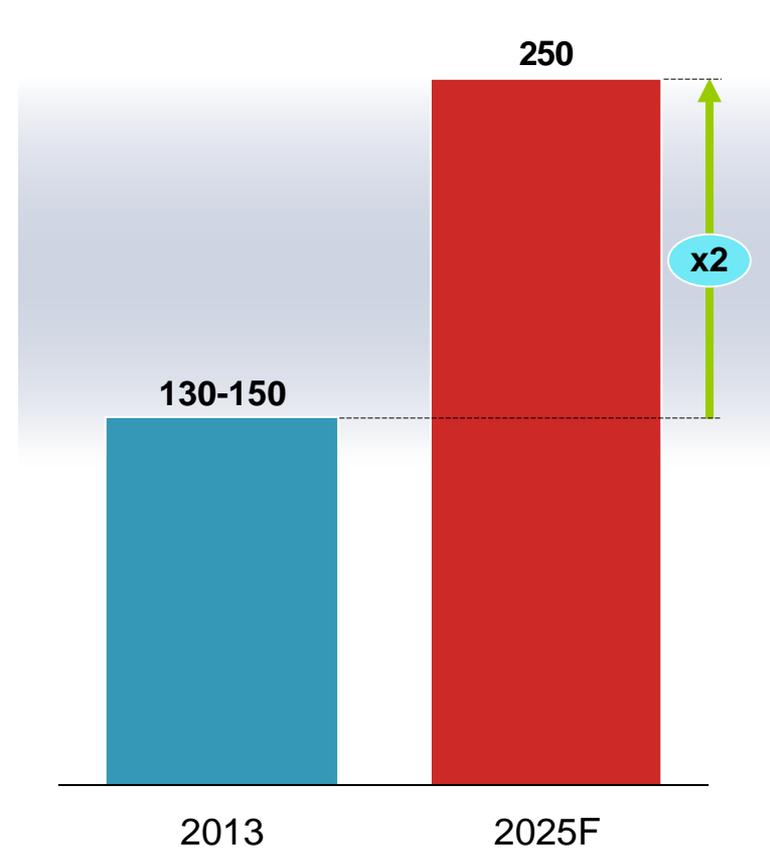
Global plastics production by region

Million tons plastic produced annually, 2000-2025F



Ocean plastic debris

Million tons estimated to be in the ocean





Partnerships for Litter Prevention



Added 700 bins in CA State Park Beaches

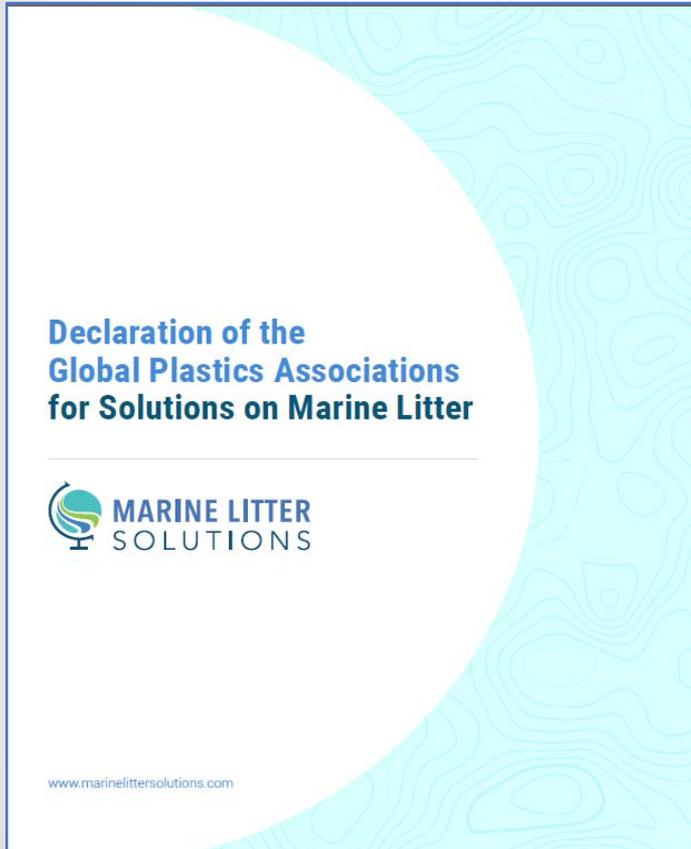


Expanded to highway rest stops with Caltrans



Partnered w/ Honolulu for litter survey and new bins in Ala Moana Park

Engaging our Colleagues



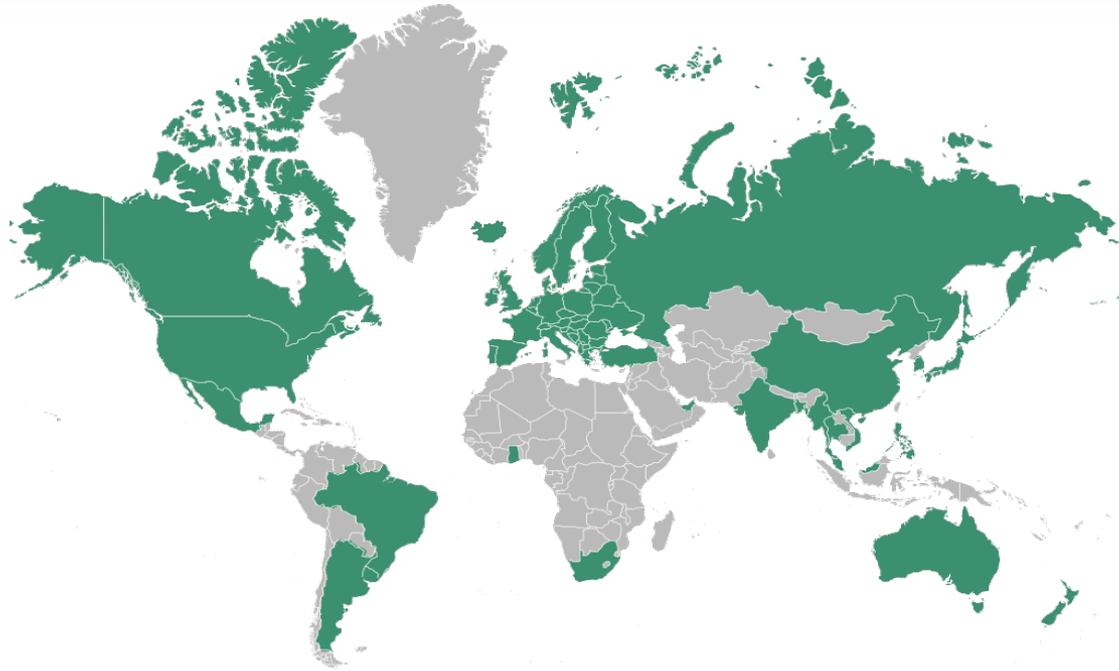
- Announced at NOAA's International Marine Debris Conference (March, 2011)
- Six-point strategy for industry action
- Engaged plastic makers and customers from around globe
- Transparent progress reports every 2 years
- 260 projects since launch in 2011

Declaration Contents

We will:

- Contribute solutions through **partnerships** to prevent marine debris
- Research** to understand scope, origin, impacts
- Promote enforcement** of existing laws to prevent marine litter
- Spread **knowledge** of efficient waste management systems
- Enhance recycling/energy** recovery opportunities
- Steward plastic pellets** from supplier to customer

Making Progress ...



2011	
Members	47
Countries	27
Projects	100

2013	
Members	60
Countries	34
Projects	185

2015	
Members	65
Countries	34
Projects	260

WPC Members



Oceans at the Center of Global Dialogue

Prioritizing Debris on Global Policy Agenda



**Asia-Pacific
Economic Cooperation**



APEC 2016 “Leaders Statement” emphasized the need for further work on waste management



...We recognize the lack of effective solid waste management infrastructure imposes great socio-economic and environmental costs, and we encourage further work on this topic.

Taking Action and Making an Impact

US Govt Support Needed:

- International engagement - Policy and funding support for waste management as a priority in developing economies
- Additional research to inform solutions
- Support cross-sector collaboration



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