Economic Responsibility for the Human and Environmental Costs of Tobacco Product Waste

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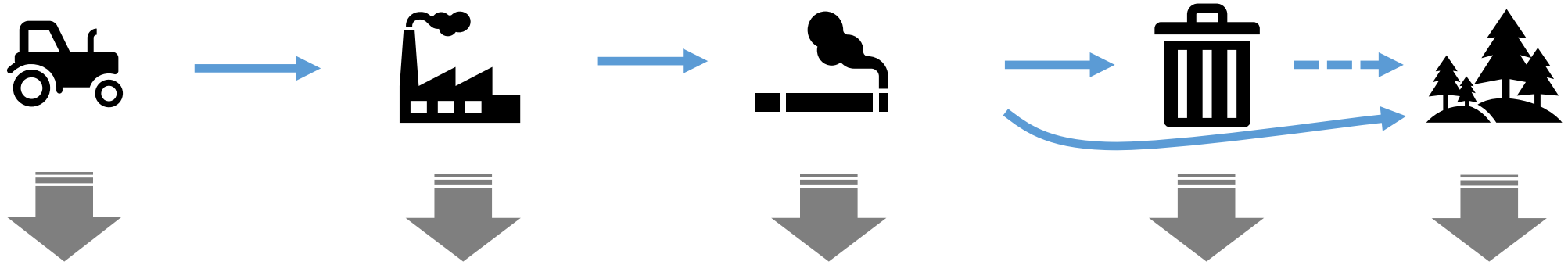
www.cigwaste.org

Tobacco's Lifecycle Impacts on the Environment



- Land & water
- Farmers
- Health system
- Environment

- Air, land & water
- Environment

- Consumers & non-consumers
- Indoor air
- Health system
- Businesses & governments
- Productivity
- Environment

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TPW: Public Nuisance, Hazardous Waste, Negative Economic Externalities

-Direct costs of cleanups borne by communities, volunteers, taxpayers (not the industry)

-Degrades natural and urban environments (Secondary economic impacts)

-Leaches out toxic, carcinogenic chemicals, including plastics (?human health/cost impacts)

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Laboratory and Field Studies

Ecotoxicological/Secondary Costs

- Toxic to marine bacteria, invertebrates, fish, in laboratory studies
- Toxic to pets and humans (through accidental ingestion)
- Hazardous chemicals: nicotine, PAHs, TSNAs, metals and microplastics (*cellulose acetate filters*)

- Tobacco chemicals found on roadsides, natural reserves, waste water, drinking water supplies, etc.
- Bioaccumulation and bioamplification possible in the food chain: Invertebrates, rainbow trout, and marine mussels
- Impacts on quality of life, tourism, urban decay

Potential Pathways of TPW to Human Health Risk

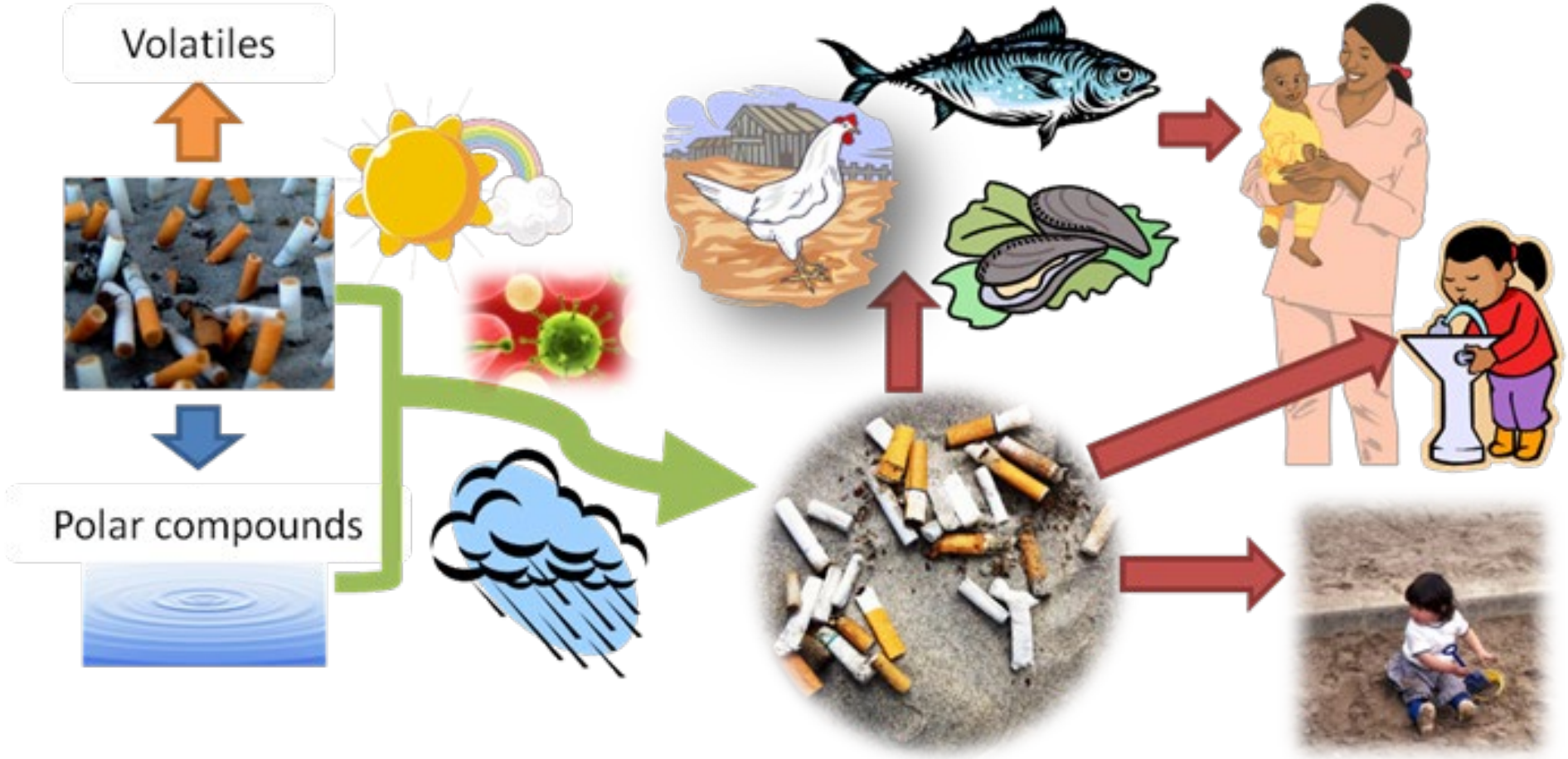

Image courtesy of Eunha Hoh, 2011

Value of Economic Studies in Tobacco Control

- MMWR July 8, 1994: ***Medical-Care Expenditures Attributable to Cigarette Smoking -- United States, 1993***
  - Estimated smoking-attributable costs for medical care in 1993 were $50.0 billion (yearly)
  - Direct and indirect costs >$100 billion
- The MSA 1998: master settlement agreement between major tobacco manufacturers and the US states
- Major companies pay the states an average of $10 billion per year for the indefinite future

Five Sources of TPW Costs

Secondary costs

Direct Costs

Straightforward in theory--

- Implementation of litter regulations;
- Litter prevention (code enforcement; courts);
- Mechanical street sweeping;
- Manual street & sidewalk cleaning;
- Manual area cleanup (e.g., parks, beaches, bodies of water);
- Stormwater systems clean out; Stormwater & wastewater treatment

Issue: Not all these data are collected in every location, so we will estimate some of these data and/or use proxies.

Secondary Costs (Unabated TPW costs)

- **Willingness to pay (WTP)** is the maximum dollar amount a stakeholder would pay for environmental goods or services.
  - Economists use WTP to measure the benefits from providing goods or services
- Challenging in the case of TPW
  - No market for tobacco trash or cleanups
  - Difficult to assess community's willingness to pay
- Other secondary costs that will need to be estimated include: human health and occupational risks, ecological damages, land cleanup and impacts on communities (*ecosystem services*)

The Costs of Tobacco Product Litter: Calculating Costs and Abatement Fees in San Francisco

John E. Schneider, PhD
Oxford Outcomes, Inc.

UCSF

Maximum Permissible Fee

Calculation of Per-Pack Maximum Permissible Fee

Measure	Estimate
Cigarette Packs Purchased in SF (2008)	30,611,026
Total Litter Mitigation Costs (2009)[a]	$7,487,916
Total Litter Mitigation Costs Adjusted for In-migration (2009)[b]	$6,649,270
Total Litter Mitigation Costs per Pack (2009)	**$0.22**

Sources and Notes: (a) from Table 2 Column [4]; (b) assumes commuter and tourist visitors to San Francisco purchase 50% of their cigarettes outside of San Francisco, resulting in an 11.2% reduction in mitigation costs associated with TPL purchased within the boundaries of the City.

- Fee increased to $1.05 per pack due to increased labor costs and inflation.
- Program administered through Dept of Environment (not Health)
- No formal evaluation of litter reduction or per capita cigarette consumption

National Study of TPW Costs: Simulation Model

- John E. Schneider et al., "Online Simulation Model to Estimate the Total Costs of Tobacco Product Waste in Large U.S. Cities," *International Journal of Environmental Research and Public Health* 17, no. 13 (2020)
- Develops simple simulation model designed to be applied to largest U.S. cities
- Now working with WHO Geneva on cost estimation for several countries

Table 3. Means and Confidence Intervals of Total Costs for All Cities based on Simulation Results.

City	Lower CL	Mean	Upper CL
New York	$57,651,833	$58,144,371	$58,636,909
Los Angeles	$19,536,484	$19,703,611	$19,870,738
Chicago	$21,904,786	$22,096,215	$22,287,644
Houston	$14,610,850	$14,736,292	$14,861,734
Philadelphia	$15,031,508	$15,160,748	$15,289,988
Phoenix	$9,497,792	$9,579,344	$9,660,896
San Antonio	$8,983,848	$9,060,898	$9,137,948
San Diego	$7,006,529	$7,066,021	$7,125,513
Dallas	$8,281,272	$8,352,924	$8,424,576
San Jose	$3,875,933	$3,908,981	$3,942,029
Indianapolis	$5,659,452	$5,707,744	$5,756,036
Jacksonville	$7,086,314	$7,146,788	$7,207,262
San Francisco	$4,160,609	$4,195,867	$4,231,125

Current TPW Mitigation Policies

- Awareness raising for smokers and non-smokers
  - PR Campaigns
  - Social Media campaigns
  - Butt cleanups/waste bins
- Banning outdoor smoking
  - Beaches, parks, restaurants, streets
- Anti-litter law (fines of up to $1000 per event)
- Take back and recycling?

Tobacco Industry Liability

- Economic: Producer will cover all or part of the costs for collection, disposal of products (directly or with fees to consumer);
- Physical: manufacturer involved with management of products or adverse effects across lifecycle;
- Informative: manufacturer required to provide information on environmental hazards of products.

Conclusions

- There are costs of tobacco product waste in the environment;
  - Blight/degradation
  - Cleanup costs
  - Ecotoxicity
  - Human health?
- Costs of tobacco product waste are borne by communities, governments, taxpayers, voluntary groups (negative externalities);
- Tobacco industry must be held accountable for all environmental and human health costs of their products; they are NOT stakeholders in policy development.