

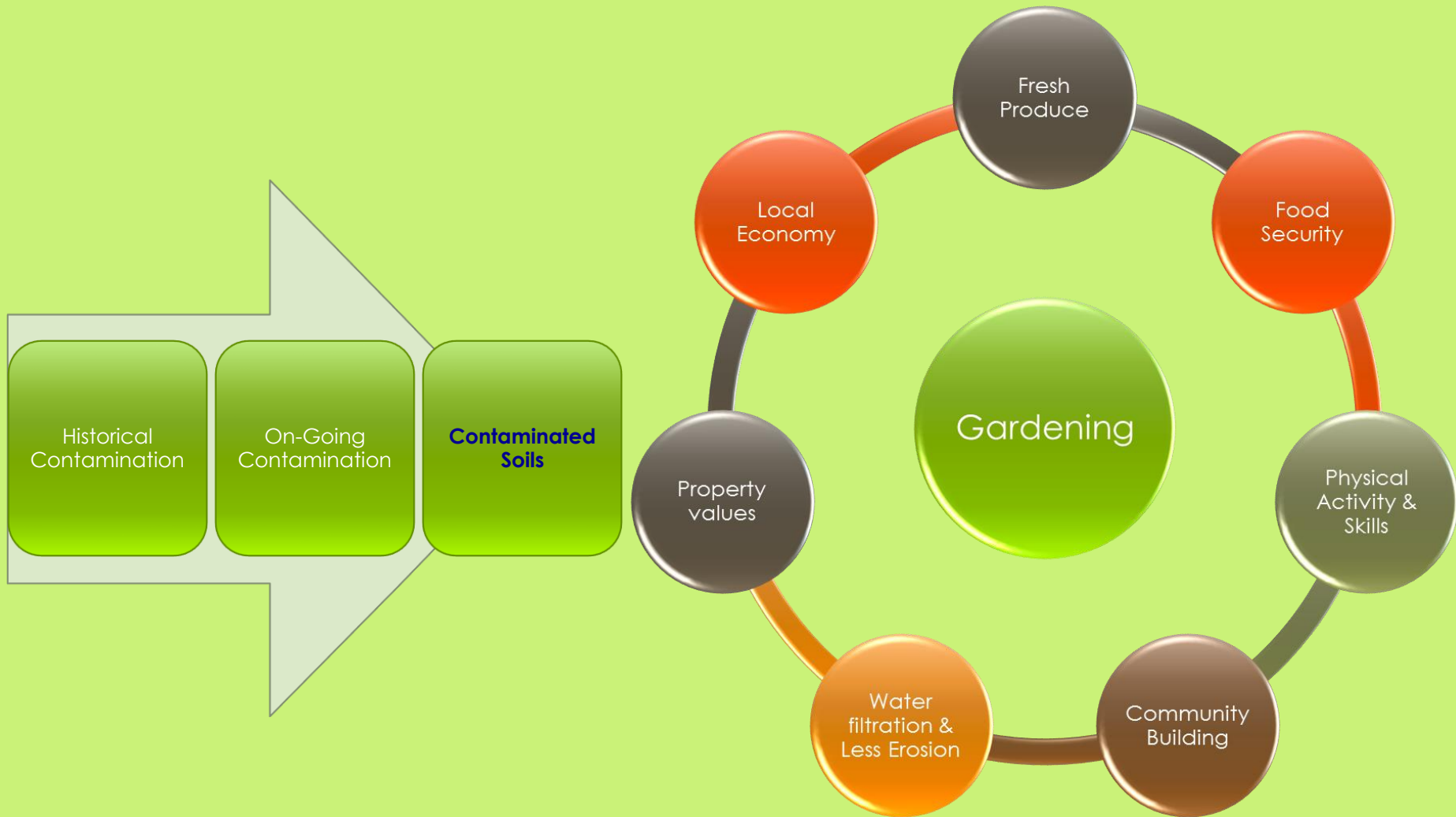
**The Collaborative on Health and the Environment
-- Partnership Call --
April 24, 2014**

CONTAMINATED SOILS AND GROWING FOOD
USING SCIENCE TO GUIDE RISK MANAGEMENT

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GARDENING BENEFITS AND RISKS



COMMUNITY VS BACKYARD GARDENS

Community Gardens



Nightingale Community Garden

“Backyard” Gardens



Contaminants Commonly Found in Urban Soils

	Common Sources	Concentration Range
Lead	Paint on Houses (pre 1978) Leaded Gasoline	100 - > 2000 mg/kg ¹
Arsenic	Pressure Treated Lumber (CCA) Older Pesticides	0.1 – 99 mg/kg ²
Polycyclic Aromatic Hydrocarbons (PAHs)	Burned Trash or Coal Creosote Timbers Street Sweepings	2.2 – 167 mg/kg ³

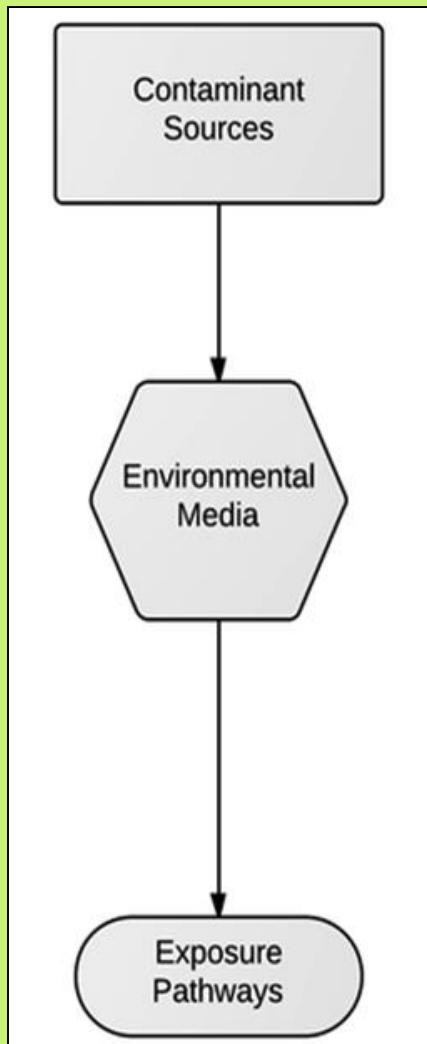
¹USEPA, Lead Safe Yards Program (2001). http://www.epa.gov/region1/leadsafe/pdf/entire_document.pdf
 BUSPH (2013). <http://sites.bu.edu/sciencegardenercollaborative/>

²MassDEP, (2002). Technical Update: Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil

³Bradley, L.J.N., et al., (1994). Journal of Soil Contamination, 3(4):349-361

HUMAN SOIL EXPOSURES

DIRECT AND INDIRECT



Ingestion of Soil While Gardening

Inhalation of Dust While Gardening

Ingestion of Soil on Plants

[Uptake into Plants]



YOUR GARDEN SOIL

1. Learn your plot/soil history.
2. When and what to test for in soil: may not be necessary.
Best Management Practices

1. What is in your loam & compost?



EVOLUTION OF BOSTON MUNICIPAL COMPOST



Pre-2012



2013

Lead (mg/kg) in Multiple Compost Sources		
Municipal (pre-2012)	Municipal 2013	Food-Based
192 - 413	100-170	62-105

BEST MANAGEMENT PRACTICES

- Learn the history of your garden soils
- Plant flowers adjacent to timbers (if feasible)
- Add organic matter, such as clean compost
- Avoid deep digging (double digging)
- Use mulch to lessen splashing of soil onto plants
- Use alternative pest management methods

Build raised beds, cover old soil with geotextile cap and import clean soil for planting

<http://sites.bu.edu/sciencegardenercollaborative/>

GOOD GARDENING PRACTICES

- Try to wear gloves while gardening
- Remember to wash hands before eating
- Wash or peel vegetables before cooking and or eating
- Try to leave shoes outdoors or at the door so as not to track excessive dirt inside
- Try not to let children eat soil

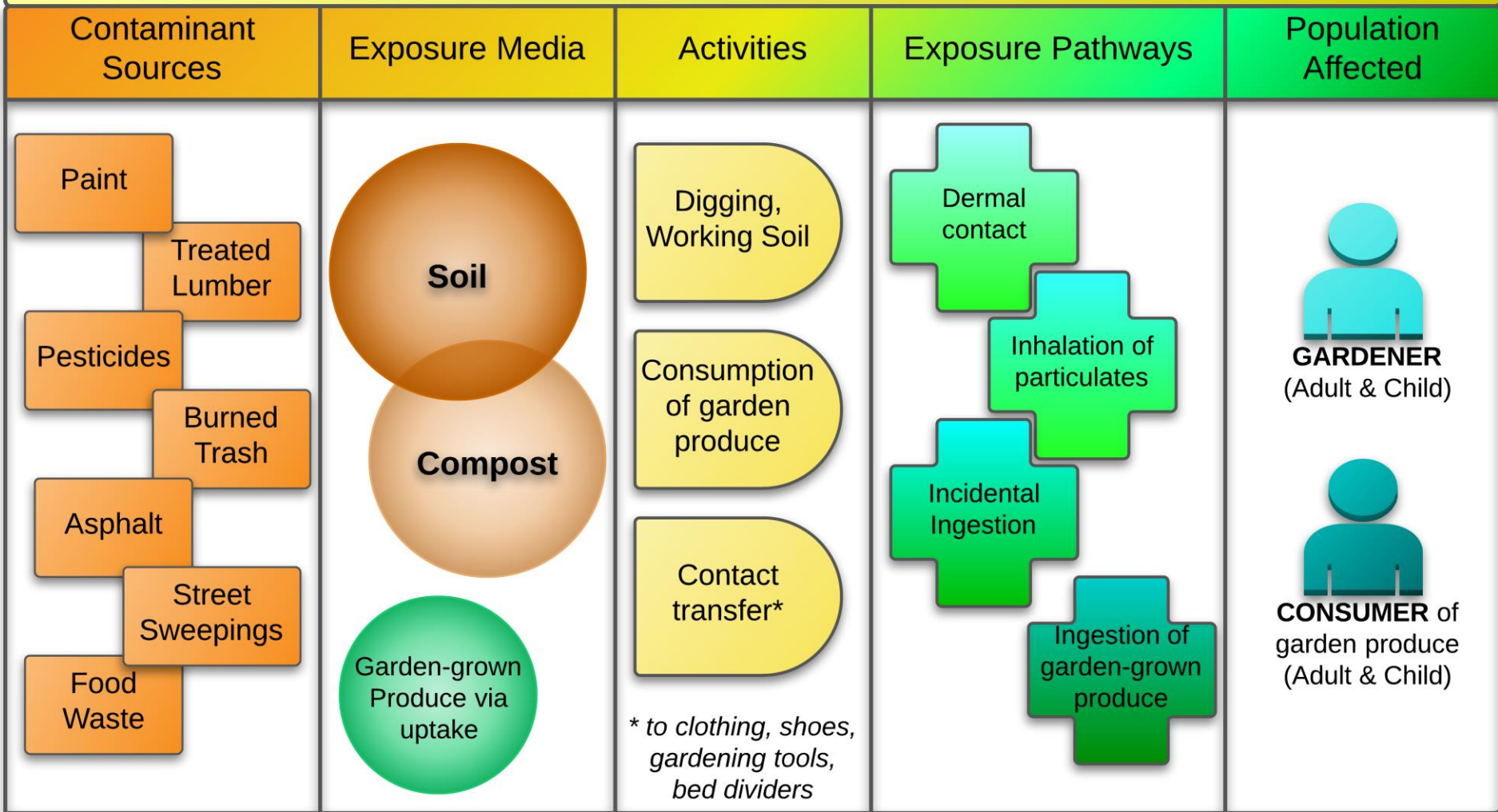
Information in 5 languages

http://www.bostonnatural.org/cgGTips_UrbanSoils.htm





Conceptual Model of Exposure for Contaminated Soil & Compost



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<http://sites.bu.edu/sciencegardenercollaborative/>

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