

Asbestos and Other Fibers in Construction

- Carol Rice, PhD, CIH
- University of Cincinnati
- Cincinnati OH USA

Cost of occupational injury/illness

US, 2007 data used for analysis

- Fatal Injuries 5,600 cost: \$ 6Billion
- Non-fatal injuries 8,559,000 cost: \$186Billion
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- Fatal illnesses 53,000 cost: \$ 46Billion
- Non-fatal illnesses 427,000 cost: \$ 12Billion
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- **Annual cost: \$ 250Billion**
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- Who paid these costs?
-
- Worker's Compensation Insurance, less than 25% of costs: \$ 62.5 Billion
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- Families and society as a whole pay 75% of these costs: \$187.5Billion
-

Costs, by category

- What is the annual financial cost of other disease burdens in the US?
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- 1. Cardiovascular Disease (\$432B)
- **2. Occupational Injury and Illness (\$250B)**
- 3. Cancer (\$219B)
- 4. Diabetes (\$174B)
- 5. Coronary Heart Disease (\$152B)
- 6. Stroke (\$63B)
- 7. Chronic Obstructive Pulmonary Disease (\$44B)
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- Source: Leigh JP. Economic Burden of Occupational Injury and Illness in the United States. The Milbank Quarterly. 89:728-772.2011.

Construction Work

- New Build
- Renovate, Reconstruct
- Demolish



http://www.flickr.com/photos/asbestos_pix

Asbestos—not just dust

- International programs to ban use
- Basel Convention—**asbestos is a toxic waste**
 - ▣ Ratified by Armenia in 1999
- No exposure is the goal
 - ▣ Workers
 - ▣ Family members
 - ▣ Community residents

Hierarchy of Exposure Control

Control to none

Eliminate

Substitute

Prevent or reduce

Modify

Contain

Ventilate

Work Practice Change

Personal Protective Equipment

Highest preference



Lowest preference

Build (new construction)

- No asbestos → No exposure
- use substitutes for specific purposes
 - ▣ Insulation
 - ▣ Sound proofing
 - ▣ Construction material

Substitutes

(see http://ibasecretariat.org/bc_asbestos_usa.php)

- Asbestos cement pipe
- Ductile iron
- High density polyethylene
- Wire-reinforced concrete
- Sewer
- Clay pipe
- Interior
- Brick
- Polyvinyl alcohol fibers/cement
- Roofing
- Light-weight concrete
- Plant fiber
- Galvanized metal
- Clay tiles

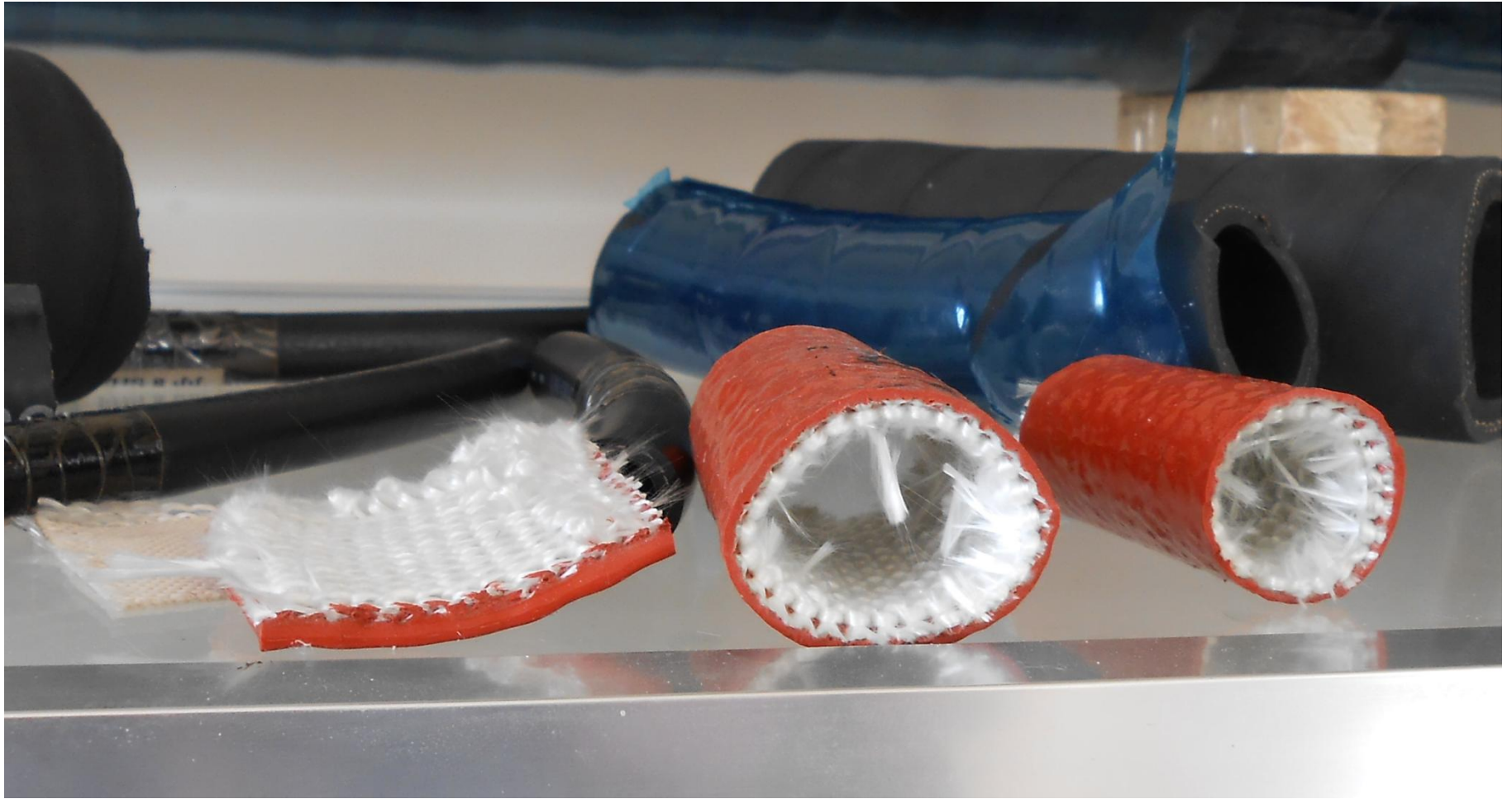
Thermal Insulation Substitutes

- Refractory brick
- Refractory Ceramic Fibers
- High Temperature Soluble Fibers
- Fibrous Glass
- Slag Wool

- Potential exposures
 - ▣ Fibers
 - ▣ Silica—quartz, cristobalite
 - ▣ Metals (slag wools)

Substitutes sold in Yerevan

- <http://www.arkomp.am>



Glass fiber products, Yerevan, April 18, 2013

Substitutes--resources

- Castleman, B. Asbestos: Medical and Legal Aspects, 2005. p 421.
- WHO.int/ipcs/assessment/public_health/asbestos_substitutes.pdf. 2008

Renovate / Reconstruct / Demolish

- Construction date
- Use of structure
- Maintenance, upkeep



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Yerevan, April 18, 2013



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Transite can also be cut with a hand saw

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Drilling Timbers in the field is facilitated by the use of a portable electric drill

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Current Armenia examples



Water pipes in Litchq Village

(Photo credit ECOLUR, www.ecolur.org, November 27, 2012.



letter addressed to EcoLur by Human Rights Defender's Office says that Human Rights Defender Karen Andriasyan :

“A part of drinking water pipes in Litchq Village, Syunik Region, is made of asbestos, which endangers both people's health and environment.

2012 covered by the mass media

the Basel convention ratified by Armenia in 1999, recognizes asbestos as a toxic waste, which can cause cancer diseases.

Syunik Regional Governor Suren Khachatryan confirmed that a part of the drinking water pipes in Litchq Village, Syunik Region, is made of asbestos.

replacing the pipes will be accomplished in June 2013.

From ECOLUR, www.ecolur.org, November 27, 2012.

Asbestos Board Roofing

(Photo credit www.fullercenterarmenia.org, 1 February 2012)



Asbestos Board Roofing

(Photo credit www.fullercenterarmenia.org, 1 February 2012)

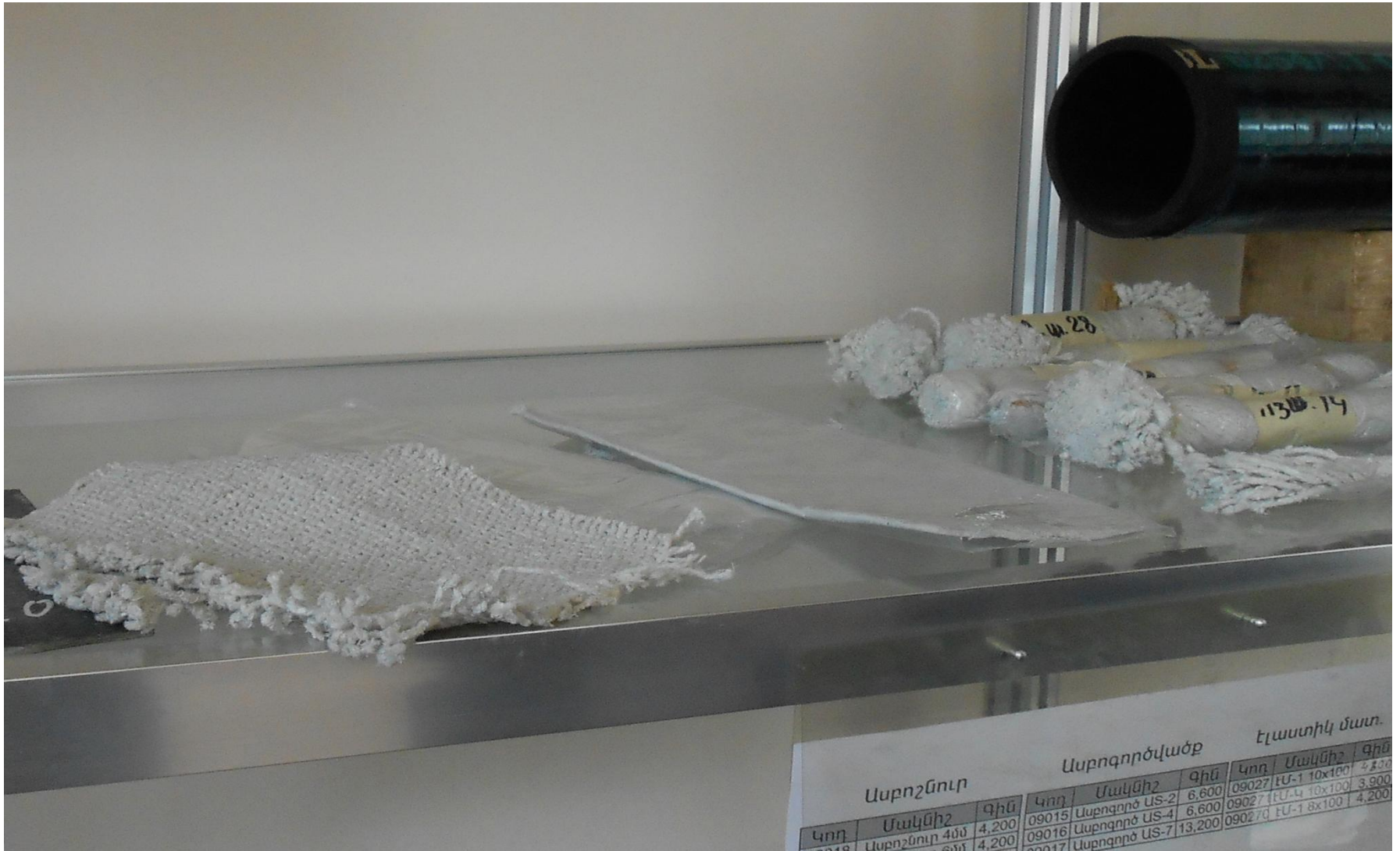


Agricultural Irrigation Project

- Millennium Challenge Account—www.mca.am/en
 - Asbestos used in pumping stations
 - Provides guidance on abating asbestos
 - Recognition
 - Training
 - Work Practices to reduce exposure
 - Personal Protective Equipment
 - Decontamination
 - Disposal

Asbestos materials sold in Yerevan





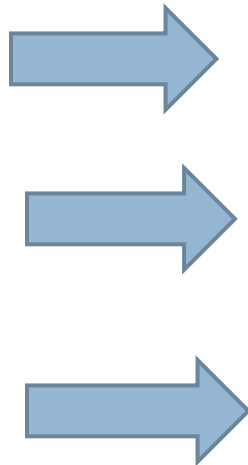
Yerevan, April 18, 2013

Goal: Reduce Exposure

- New Construction—substitute
- Renovate/Demolish/Reconstruction—recognize, reduce
 - ▣ Includes maintenance
- Barriers
 - ▣ Hazard recognition at all levels
 - ▣ Priorities
 - ▣ Money
- Tools to achieve goal
 - ▣ Regulation, followed by enforcement
 - ▣ Training to avoid exposures

Solutions—multiple approaches simultaneously

- Raise awareness
- Regulate and enforce
- Plan to avoid exposure




Additional Resources

- Working with non-friable asbestos
 - https://docs.google.com/viewer?a=v&q=cache:W3u4L2enISQJ:www.mca.am/files/environmental/MCA-Armenia%2520guidelines%2520on%2520handling%2520ACM-eng.pdf+'Guidelines+for+handling+non-friable+asbestos+containing+waste'&hl=en&gl=us&pid=bl&srcid=ADGEESgS9nPjOk8EWrMOkGMshiHbMwtnzCrEualxy4IU0cu_rvH1Q_O6wJMjU40I0wCNXNNKueraydahejJ8-J-gU0ulaR2OBQPs9RPnXBq03GoAwzVzOi2W73WgXzHDEJayXA_tDkp7&sig=AHIEtbRAfwOsUJCX1U5wH8tRzJ-AvHebNw
- How to set up a National Program to Eliminate Asbestos Disease
 - WHO.int/occupational_health/publications/Out_NPEAD_ENG.pdf

□ World Bank Guidance:

www.siteresources.worldbank.org/EXTPOPS/Resources/AsbestosGuidanceNoteFinal.pdf (or Google 'World Bank Asbestos')

- WHO, National Programmes for Elimination of Asbestos-related Diseases, 07-08 June 2011, Bonn. (see Annex E for extensive listing of substitutes)

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- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Google 'Basel Convention')
 - Photos used with credit for educational purposes only