Part 1: A 5-Step Land Reuse and Redevelopment Model: Resources to Spur Local Initiatives

Background
People who live near or access land reuse sites such as brownfields often experience disproportionate exposure to environmental pollution that can result in poor health outcomes, including higher rates of chronic disease, toxic exposures (e.g., mercury or lead-based paint) that result in adverse health effects, and cancer (de Leon & Schilling, 2017; Massey, 2004; New Jersey Department of Health and Senior Services, 2007). To address health risks and exposures related to land reuse sites, for over a decade the Agency for Toxic Substances and Disease Registry (ATSDR) internally integrated a public health model in land reuse and redevelopment—the 5-Step Land Reuse Strategy to Safely Reuse Land and Improve Health (5-Step Land Reuse Model).

In June 2015, ATSDR introduced the 5-Step Land Reuse Model during a 3-day training facilitated by the American Public Health Association. The purpose of the training was to introduce the 5-Step Land Reuse Model as a national model that could expand resources for health-focused land reuse at the local level.

The 5-Step Land Reuse Model Training
Over 65 individuals participated in the training. Participant came from ATSDR’s Brownfields and Reuse Opportunity Working Network (BROWN), community partnerships, and grantees (an ATSDR funding program from 2008–2016). The authors represent each of these participant groups. The training was based around the 5-Step Land Reuse Model shown in Figure 1. A brief description of the training based on each of the model’s steps is provided below.

Step 1: Engage With the Development Community
Participants shared and practiced using community engagement techniques, such as plain language (www.plainlanguage.gov) and community engagement games. ATSDR grantees shared successful community engagement techniques, such as funding of promotores de salud (community health workers), in which community members educate and engage their communities about land reuse sites, environmental concerns, and associated health outcomes.

Step 2: Evaluate Environmental and Health Risks
This session was grounded in environmental health basics that included definitions and significance of exposure sources, media, pathways, toxicology, and cancer and non-cancer risks. Participants learned about and practiced using the following tools:
- health impact assessment (Centers for Disease Control and Prevention [CDC], 2016),
- Protocol for Assessing Community Excellence in Environmental Health (CDC, 2017),
- Healthy Community Design Checklist (CDC, 2013),
- ATSDR Brownfields/Land Reuse Action Model (ATSDR, 2013),
- ATSDR Land Reuse Site Screening Tool (ATSDR, 2018), and
- community-based participatory research (Zubaida, Grunbaum, Gray, Franks, & Simoes, 2007).

Step 3: Communicate Risk or Health Issues to the Development Community
This session emphasized the importance of health risk communication in community buy in for redevelopment. Expert risk communicators described basics of overall health communication, led role-playing scenarios that result in positive or negative risk communication, and provided examples of real-world community-based risk communication activities they perform.

Step 4: Redesign the Community With Health in Mind
This session described redevelopment planning approaches to maximize health outcomes across physical, social, and economic health spectrums. Examples such as energy efficiency, stormwater management, tree planting, nonmotorized transportation (e.g., bicycling infrastructure), and agriculture to improve food access and build local economies were provided and supported by case examples and best practices. In addition, BROWN provided targeted technical assistance to each community partnership.
Step 5: Measure Success: Environment and Health Change

This session emphasized the importance of evaluating how environmental remediation or restoration can lead to changes in health and environment over the course of redevelopment. The ATSDR Action Model was highlighted as a redevelopment tool for including measurable indicators as benchmarking outcomes. Example indicators are shown in Table 1.

Outcomes: The 5-Step Land Reuse Model as a National Resource

The 2015 training provided a rich repository of land reuse and redevelopment resources, success stories, lessons learned, and opportunities for collaboration. Shortly after the training, ATSDR developed the Land Reuse Toolkits to elevate the 5-Step Land Reuse Model for public use. ATSDR incorporated the input of the training participants who essentially represented the five personas of the toolkits: community champions, community planner, municipal agency, environmental or health professional, and developer. ATSDR included in each toolkit resources from the training and from a book authored by BROWN members, Land Reuse and Redevelopment: Creating Healthy Communities (Berman & Whitehead, 2018).

The 2015 training also launched participant collaborations. One collaboration resulted in a European Union Erasmus award for a 2018–2019 faculty and student exchange on health-focused land reuse between universities in Romania and the U.S. In another collaboration, two BROWN members and two community partnerships successfully applied for a Robert Wood Johnson Foundation Culture of Health Leaders Program advocating for “healthfields” (i.e., safe reuse of land to reduce exposures and achieve environmental and community health improvements). They received $380,000 for individual healthfields projects in target communities over 3 years (2016–2019).

Recently, ATSDR and the National Environmental Health Association (NEHA) collaboratively designed an online certificate program in environmental health and land reuse based on the 5-Step Land Reuse Model. The certificate program includes environmental health basics of epidemiology, land reuse and redevelopment, risk assessment, risk communication, and toxicology. The certificate program is scheduled to launch in 2019 and will be provided free of charge for continuing education by ATSDR with a dual certificate offered by NEHA.

Conclusion

The June 2015 training participants represented interest groups frequently at the table in community-driven land reuse and redevelopment projects. Ultimately, the training led to several participant collaborations, the development of the Land Reuse Toolkits, and the creation of the ATSDR and NEHA environmental health and land reuse certificate program. Overall, the training met ATSDR’s goal to elevate the internal 5-Step Land Reuse Model into a national model to support local health-focused redevelopment projects.

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References

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NEHA is pleased to announce the 2019 National Environmental Public Health Internship Program. The program enables students to gain a firsthand perspective on the day-to-day responsibilities of environmental health professionals. Local, state, and tribal environmental health departments can apply to host one of the internships. The deadline for student and health department applications is January 18. Learn more at www.neha.org/professional-development/students/internships.

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