



Health protection through revitalization of contaminated sites in urban areas - A WHO planning brief -

Sinaia Netanyahu, WHO European Centre for Environment and Health

The importance of contaminated sites in the WHO European Region

- An average of 3.6 sites are registered in country inventories per km² of artificial surface in all 28 EU Member States (EU-28)
- 2.8 million potentially contaminated sites across the member countries of the European Union
- 690 000 of these having been formally registered
- 240 000 of these site require closer investigation and potentially, remediation
- around 65 500 sites that have already been remediated or are under aftercare measures

(Payá Pérez & Rodríguez Eugenio, 2018)

 Very limited information is available on contaminated sites outside the EU





Origin of contaminated sites



Earlier industrialization and poor environmental management practices have left a legacy of contaminated sites across the European Region.

Malpractice, lack of legislation, or lack of implementation are main contributors this legacy.

WHO has addressed the challenge of contaminated sites and health over the last decade through various projects.



Redevelopment of contaminated sites – project objectives

Review of practical experiences with the process and management of conversion of contaminated sites and their redevelopment for new urban functions.

- ⇒ Exploring the process and the role of local and public authorities in assessing, remediating and redeveloping contaminated sites
- ⇒ Compiling lessons learned and key messages for future action by local and public authorities with similar challenges ahead of them
- ⇒ NB: NOT aiming to review technology and approaches on contamination assessment or remediation techniques on site cleaning

Redevelopment of contaminated sites – project objectives world Health

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- ⇒ Target audience of the planning brief:
 - Environment and/or health practitioners at local level
 - Urban planners and local decision-makers for urban development, environment, health, social affairs, etc.
 - Civil society organization and local initiatives
 - > Landowners, environmental consultancies, etc.

Project outcomes



(1) Technical report on environment and health dimensions of redeveloping contaminated sites

Including annex sections on three working papers prepared for the project:

- Review of <u>scientific evidence</u> on environment and health impacts
- Compilation of practical <u>case study experiences</u> on local / regional action and interventions
- Examples on the role and <u>applicability of environmental and health</u> <u>impact assessments</u>

(2) Planning brief on redeveloping contaminated sites

The brief provides the most relevant actionable guidance on "what works" and "what should be considered" to local and regional practitioners and policy-makers.



What is a contaminated site?



Contaminated sites are areas having hosted or being affected by human activities which have produced environmental contamination of soil, sediment, surface or groundwater, air, or foodchain, resulting or being able to result in harm to human health, the environment or ecological systems



(based on Martuzzi, Pasetto & Martin-Olmedo, 2014)

Health impacts of contaminated sites

- Many contaminated sites are situated in or close to densely populated urban areas
- Contaminated sites can lead to significant contamination of water, soil, air and food, which can directly threaten human health through ingestion, inhalation, skin contact and dermal absorption
- Living on or near contaminated land is associated with
 - adverse health impacts,
 - shorter life expectancy and
 - lower quality of life
- Communities living on or close to contaminated sites are often socioeconomically deprived or disadvantaged in other ways, pointing towards serious environmental injustice

The health and environmental impacts of contaminants are various, but include:

- cognitive impairment and neurological damage
- adverse impacts on respiratory, renal, reproductive and digestive systems (e.g. cancers)
- miscarriages and reduced fetal growth
- acute poisoning in humans
- damage to ecological systems.

Health benefits of redeveloping contaminated sites



Sound remediation and redevelopment of contaminated sites can reduce e.g.

- contaminant concentrations in water, soil or house dust
- concentration of contaminants in blood or urine
- contamination levels in food items

Health relevance of contaminated site redevelopment relates to

- Health protection in communities living close to remediated and cleaned sites
- Health protection for new residents / users of and on redeveloped sites

Redevelopment projects that provide specific **public health information campaigns** to local residents (raising awareness on current risk, exposure routes and adequate behavior to reduce exposure) have been effective in managing health risk

Remediation of a contaminated site: step by step

- Many of these steps may require expert knowledge, which is not necessarily available to all public authorities or all site owners.
- Ideally, these stages of investigation and remediation are directly linked to urban planning schemes for the redevelopment of new site functions.
- The planning brief provides some information on the content of the different steps, and the key aspects to be considered.





Orgware – representing how a process is organized, coordinated and regulated.

Involvement of public authorities

Hardware – including equipment and techniques as well as procedures for risk assessment and site cleaning.

Software – assuring adequate evaluation procedures and calculation instruments.

Mainly done by external experts and specialized subcontractors





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...supported by this planning brief!

External expertise is often sought from:

- environmental practitioners with diverse expertise (e.g. in chemistry, geosciences, engineering, field sampling, redevelopment and other disciplines);
- soil sampling and analytical laboratories;
- environmental contractors (e.g. engineering companies, remedial enterprises);
- redevelopers (e.g. planners, real estate companies, building companies).



Lack of information on old sites	 Past environmental permits, old maps and images Talking to former employees and local residents
Shared vision on the future of the site	 Way to overcome conflicts between involved actors Facilitates integration of remediation & redevelopment
Managing stakeholder involvement	 Identify different expectations and potential conflicts early Think beyond the site when establishing stakeholders
Coordination and leadership by public authorities	 Anticipate site closures and have future plans ready Case manager to oversee and harmonize work across departments
Transparent and open risk communication	 Respect community perceptions and concerns Communicate existing risks and related actions reliably



Ensuring public participation	 Use local discussion fora and participatory planning instruments Involve different local groups to assure needs are matched
Quality assurance and external experts	 Employ experienced / accredited professional consultants and contractors Establish competent authorities to provide expertise and procedures
Ensuring environment and health protection	 Carry out solid site investigation / risk assessment before remediation Dispose of harmful material safely; be sensitive to reported health issues
Monitoring environmental risks	 Monitoring during and after remediation, specific to the sites' history Establish an action plan with defined thresholds and actions
Funding and the polluter pays principle	 Implement env. inspections, esp. when site function / ownership changes Incentives to attract investment in sites with high remediation cost

Key messages of the planning brief



Redeveloping contaminated sites is a promising public health intervention.

Effective and transparent coordination and communication is a key requirement.

Knowledge and experience must be shared and capacities built.

Lessons learned from the past can help inform the management of future site closures and contamination scenarios. A sound site investigation is the baseline for all decision-making.

Site diversity must be acknowledged and tailored responses found.

National structures and frameworks are essential to support local authorities.

Acknowledgments



The planning brief was produced with the financial support of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

WHO thanks Eddy Wille (Public Waste Agency Flanders), Danielle Sinnett (University of the West of England, UK) and Gergo Baranyi (University of Edinburgh, UK) as co-editors of the brief.





Thank you very much!

Contact:

Sinaia Netanyahu

WHO European Centre for Environment and Health

netanyahus@who.int

